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ALGONKIAN-RITWAN: THE END OF A CONTROVERSY

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1. Wiyot and Yurok, isolated languages of northern California, are conveniently classed together under the name Ritwan (Dixon and Kroeber, 1913) and it is the purpose of this paper to present evidence demonstrating the genetic relationship of these languages to the Algonkian family. Sapir first postulated such a relationship as early as 1913, but when he did so an unusual amount of controversy was aroused. In particular the brilliant Algonkianist Truman Michelson denied the possibility of such a relationship with considerable vehemence in a paper published in 1914. Sapir replied to this criticism in 1915 but Michelson was ready with a rejoinder in the same year. Dixon and Kroeber (1919) accepted Sapir's "findings in full confidence" (p. 113) but did not present any new evidence. A few years later Sapir (1923) reinforced his position by the publication of an illuminating article on Yurok and Wiyot kinship terms in relation to those of Algonkian. As far as the presentation of evidence is concerned, the matter has rested there ever since.

In 1913–15, at the time of Michelson's protestations against Sapir's hypothesis, the amount of published (or unpublished) material on either Wiyot or Yurok was scanty (Kroeber, 1911). Extensive materials on Wiyot did not become available until Reichard's Wiyot Grammar and Texts was published in 1925. Extensive materials on Yurok are still unavailable except in manuscript form (Robins, in press). New, recently recorded materials on Wiyot will also be available presently (Teeter, unpublished field notes).[1]

In the introduction to her Wiyot Grammar, Reichard hesitates to take a definite stand in respect to the Algonkian-Ritwan controversy, but she gives the impression of being sympathetic to Michelson's negative arguments. She did, however, apparently make an attempt to familiarize herself with some of the material on Fox, presumably for the purpose of trying to find parallels. She may be hinting at some such parallelisms in her brief comment on the types of Fox verb stems in connection with her discussion of Wiyot verb-stem types (pp. 42–43). In addition she closes her volume with the translation into Wiyot of two short paragraphs from Michelson's "The Owl Sacred Pack of the Fox Indians" (1921) which "are included," she says, "to satisfy a lurking curiosity as to the comparative appearance of the two languages when seen side by side" (p. 6).

As far as is known, Michelson himself made no attempt to reexamine the problem after the Reichard material became available. Had he done so, it seems incredible that he could have remained unconvinced

[1] The field work of R. H. Robins on Yurok (1952) and of Karl V. Teeter on Wiyot (1956 and 1957) was carried out under the sponsorship of the Survey of California Indian Languages, Department of Linguistics, University of California, Berkeley.

of at least the possibility of a remote relationship between Algonkian and Wiyot. I suspect, however, that he considered the matter closed.

Leonard Bloomfield, another outstanding Algonkianist of the preceding generation, takes a modest stand in regard to the problem in his famous sketch entitled "Algonquian" (1946). He states simply (p. 85) that "Two languages of California, Wiyot and Yurok, have been suspected of kinship with Algonquian."[2] There is no evidence known to me which would indicate that he had made a personal examination of the problem.

As a result of the above mentioned facts, a cloud of doubt has enshrouded the whole problem of a possible relationship between Algonkian and Ritwan for very nearly half a century. Many of Sapir's other and much more problematical hunches about North American genetic affiliations have been accepted with scarcely a murmur of protest. On the other hand, the Algonkian-Ritwan connection, which turns out to be more readily amenable to proof than many of the others he postulated, is still quite generally considered to be highly controversial. The only hint to the contrary is Greenberg's recent statement (1953) that "even a cursory investigation of the celebrated 'disputed' cases, such as Athabaskan-Tlingit-Haida and Algonkin-Wiyot-Yurok, indicate that these relationships are not very distant ones and, indeed, are evident on inspection" (p. 283).[3] But unfortunately, when a postulation of genetic relationship has been a matter of dispute for several decades, the dispute cannot be settled by the simple statement 'It is so' or 'It is not so.' And any attempt to settle the Algonkian-Ritwan question on the basis of the actual comparative evidence that exists in the literature tends to force one into the completely noncommittal position taken by Hoijer in 1946: "Sapir . . . set forth the hypothesis that these two [Ritwan and Algonquian] were related. This view was attacked by Michelson" (p. 13).

It would scarcely be fair to pass over without any mention whatever two papers by C. C. Uhlenbeck which are concerned with the problem. Since these are in Dutch I have not read them, but the translations of their titles, namely "Algonkian-Sounding Words in Wiyot" (1927) and "Grammatic Influence of Algonkian on Wiyot and Yurok" (1939), give us some suggestion of their content. In a later article in English

[2] Even this modest statement seems to have been misunderstood by some who have an interest in the problem. Heizer (in Tax and others, 1953) refers to this quotation in a manner which implies that he interprets Bloomfield's use of the word 'suspected' to mean that the kinship is suspect (p. 59).

[3] When Greenberg's paper (1953) was presented at the International Symposium on Anthropology in 1952 (under the sponsorship of the Wenner-Gren Foundation for Anthropological Research, Inc.) his use of such phrases as "cursory examination' and "evident on inspection" provoked some discussion as to their precise implication. In a recently revised and expanded version (1957) of this article, Greenberg gives a clearer picture of what he means by the inspection method. It involves, among other things, the "mass comparison of basic vocabulary" and the use of the "technique of group comparison of languages" (pp. 40–44).

In this second article he refers again to the Algonkian-Ritwan connection in the following statement: "The correct hypothesis may not appear quite so quickly in every case [of mass comparison of vocabulary], but even supposedly distant relationships, e.g. Algonkian-Ritwan, Austroasiatic, appear fairly soon and are confirmed again and again" (p. 44). One additional comment needs to be made in regard to this last quotation. Since my purpose in preparing the present paper is to give the evidence not given by others in support of the Algonkian-Ritwan affiliation, I am therefore in agreement with Greenberg's remarks about this relationship. But the fact that he is right about Algonkian-Ritwan should not be taken to mean that he is necessarily right about all the linguistic affiliations which he mentions without giving the supporting evidence. I am not, for example, in a position either to affirm or deny the Austroasiatic hypothesis. I have not yet made a personal examination of the various languages subsumed under this term, and until I have done so, or until someone else interested in the problem presents the evidence, I shall have to remain neutral.

(1948) Uhlenbeck refers to Ritwan and Algonkian as "a puzzling case."[4] But in this very same article he wholeheartedly endorses "as certain . . . the common origin of Natchez and Muskogean" (p. 223). In a recent study I have reexamined the Natchez-Muskogean relationship (1956) and have provided 73 probable cognates. In the present article I provide 93 probable cognates (see **4**) for Algonkian-Ritwan. I subscribe to both relationships, but the Algonkian-Ritwan evidence is meatier than the Natchez-Muskogean evidence. Therefore if Algonkian-Ritwan is 'puzzling,' Natchez-Muskogean cannot at the same time be 'certain.' This is in no sense a criticism of Uhlenbeck. Instead it is a very good example of the invidiousness of the Michelson attack on Sapir's hypothesis. If there had been a Muskogean 'Michelson' as well as an Algonkian Michelson, the same protests against the Natchez-Muskogean affiliation would have reverberated in the literature, and that connection too would have had to be rated as 'puzzling' rather than 'certain.'

2. It is therefore imperative to present without further delay some of the evidence that is now available on the nature of the Algonkian-Ritwan affiliation. The problem is one of deep concern not only to linguists but also to archeologists and other culture historians. Heizer (in Sol Tax and others, 1953) has recently summed up the case for the latter group in the following words:

> The Wiyot-Yurok area is one which displays a distinctive recent culture type, and this can be projected back in time to about 1000 A.D. If, as now seems probable on the basis of available archeological information, the Wiyot and Yurok entered the area about 1,000 years ago, their actual linguistic affiliation will be important in suggesting a possible direction from which they came. Whether Wiyot and Yurok are or are not of Algonquian affiliation . . . is important. (P. 59.)

Therefore for the benefit of culture historians and others who might wish to satisfy themselves as to the validity of the relationship without the tedium of reading through all of the evidence, I present first a synoptic preview of terms which have cognates (sometimes consisting of more than one morpheme) in all three of the languages. This is shown below, with gloss in italics followed, respectively, by a starred form (PCA or PCEA), by a form in Wiyot, and then by a form in Yurok.

One *kot-(*kwet-) ku?c koht-; *two* *ni·šṛi?t- ni?iy-; *three* *ne?θ- ṛi?g- nahkse-; *arm* (*finger*) *-θen(cye·)- šo·n- -sen; *bone* *waθkan- watkaṛ- wałka·?; *my eye* *neški·-n (šekw)- ṛali·ṛ neylin; *his leg* (*foot*) *wexka·cwačko·č wacka; *his liver* *weθkwan- watwaṛ wałkun; *his mouth* *weto·n- walul- weluł; *his tongue* *wi·θan- wi·t- weypł; *his tooth* *wi·pit- wapt- warpeł; *his tail* *waθanywadi·?l wałəy; *grease* *pemi pu?m pemey; *tree* *-a·htekw- -o·ti? tepo·; *louse* *ehkwhikw mohkoh; *to drink* *mene βaṛo- meno(kʷolum); *to suckle* *no·n- -ṛun(oč)- newon; *to steal* *kemot- komar- kemol-; *long* *kenwło?w knew-; *you* *ki·l- gi·l ke·?l.

The above synoptic preview should be sufficient to demonstrate the genetic affinity of these languages for all practical purposes. The items listed are all of the type generally considered to be 'basic.' A minimum of three consecutive phonemes are being compared in every instance, and in several instances as many as six consecutive phonemes are compared. In several cases two consecutive cognate morphemes are combined in the same order, e.g. *my eye* (*my* + *eye*), *his leg* (*his* + *leg*), etc. The chances that resemblances of this nature could be accidental are so infinitesimal that the possibility need not be considered.

[4] Uhlenbeck's full statement is as follows: "A puzzling case is the relation of Dixon and Kroeber's Ritwan (Wiyot and Yurok) to Algonquian. Many of us will remember the controversy Sapir versus Michelson in the American Anthropologist. A tentative solution of the vexatious question in the Medeelingen of our Royal Academy (1927 and 1939) [his own articles in Dutch, just mentioned] has been overlooked by Hoijer [in the statement just quoted in the text]" (p. 223).

Granted that this is true, why has the issue remained unresolved for so many decades? One reason, certainly, is that no one (except, presumably, Greenberg) has taken the trouble to reexamine the problem in the light of new source materials that have become available since 1913–15 when the controversy was at its height. And no one at all has taken the trouble to present the evidence that such an examination would reveal.

However, this assertion somewhat understates the case. In actual fact I have had to rely heavily on unpublished materials for Wiyot and Yurok forms (see **3** below) and the Proto Central Algonkian reconstructions which are so necessary for effective comparison have been the result of the labors of several scholars and have been appearing in print at rather widely separated intervals.

The year 1925 is significant for this problem not only as the publication date of Reichard's Wiyot material but also as the year in which Bloomfield brought order out of chaos in Algonkian comparative studies with "On the Sound System of Central Algonquian" (1925). Ten years later Michelson set forth the results of his attempts to bring the Plains languages into the picture in an article entitled "Phonetic Shifts in Algonquian Languages" (1935). A wide variety of PCA reconstructions are to be found scattered throughout this article. Though some of these reconstructions were superseded by Bloomfield's later work (1946), Michelson still remains the chief source for many items. Thus I was enabled to add a number of cognates to my list (see **4**) by making use of reconstructions provided by Michelson which are not otherwise available in the literature. Ironical though it may be, to Michelson then must go a fair share of the credit for making accessible a good portion of the material needed to establish the relationship he so violently opposed.

Several important articles on problems of PCA consonant clusters appeared in 1941 (Voegelin, Siebert, Geary). But the most important single work, Bloomfield's masterly sketch of "Algonquian," did not appear until 1946. Here he sets forth all of the sound correspondences for PCA and at the same time presents the total grammatical structure of Algonkian in all its complexity. Bloomfield's work has also served as the point of departure for Hockett's proposed Central Algonkian comparative dictionary, the first installment of which (1957) did not appear until after the first draft of this paper was written.

As a matter of plain fact, then, the historical sequence of events just described was necessary before the material assembled in the present paper could be brought together and presented with the reasonable hope that the long-standing Algonkian-Ritwan controversy could be brought to an end. The note of finality, however, applies only to the controversy. In all other respects this paper aims to serve only as a beginning —the necessary first attempt to place Algonkian-Ritwan comparative studies on a firm basis.

3. The immediately following section (**4**) contains a selected list of cognates showing the relationship of Algonkian to Wiyot and/or Yurok; the sound correspondences are outlined in **5** and **6**. The Algonkian forms quoted are reconstructed PCA (Proto Central Algonkian) taken from Bloomfield (1946), Hockett (1957), Michelson (1935), and Voegelin (1941). Other forms taken from Siebert (1941) are marked PCEA (Proto Central-Eastern Algonkian) since some of the distinctions in reconstructed consonant clusters can be made on the basis of evidence from the Eastern languages only. All Algonkian forms quoted have been converted to the Bloomfield system (1946) but with raised dot for vowel length and /c/ in place of /č/, as in Hockett (1957). An additional substitution of /ʔ/ for /q/ has been indroduced.

An examination of the standard sources cited above did not, however, always turn up the particular reconstruction I needed. In a few instances, then, it was necessary for me to make a tentative reconstruction of my own, sometimes on the basis of very meagre evidence. All such reconstructions are marked (Ha) so that their tentative nature may be known, and whatever material was available to me in the way of supporting forms from the daughter languages is also given.

The Wiyot forms are taken from Teeter (unpublished notes) or, when unavailable in his notes, from Reichard (1925) or, occasionally, Kroeber (1911). Those quoted from Teeter are unmarked; those quoted from Reichard and Kroeber are converted into Teeter's system of transcription (in so far as possible) but are marked (R) and (K), respectively. Teeter has written a paper on the relationship of Wiyot to Algonkian (ms.) and the PCA-Wiyot cognates for *bear*, *bone*, *drink*, *four*, *leg*, *liver*, *louse*, *one*, *penis*, *obviative*, *pronoun base*, *red*, *rock*, *sleep*, *three*, *tree* (*stick*), and *two* are taken from that source. The Yurok cognates (as well as many of the Wiyot ones) are the result of my own searching and the terms are taken largely from Robins, The Yurok Language (in press). A few forms are taken from my own field notes on Yurok and a few others were kindly supplied by Kroeber. Those quoted from Robins are unmarked, but those from my own notes are marked (Ha) and those from Kroeber are marked (K).

Abbreviations used are shown below. For a list of references cited see **8.**

Ab *Abnaki*; quoted from Rasles (1833).

Alg. *Algonkian.*

anim. *animate gender.*

B *Blackfoot*; quoted from Uhlenbeck and Van Gulik (1933).

Bl *Bloomfield* (1946). When followed by a plain number the reference is to the number of the reconstruction; otherwise the abbreviation is followed by a page number referring to the same work.

Bl Lg. *Bloomfield* (1925 and 1941).

C *Cree*; quoted from Bl, H, or L.

D *Delaware*; quoted from Voegelin (1946).

F *Fox*; quoted from Bl or H.

H *Hockett* (1957). When followed by a plain number the reference is to the number of the reconstruction; otherwise the abbreviation is followed by a page number referring to the same work.

Ha *Haas*; for PCA reconstructions not otherwise available and also a few Yurok words taken from own field notes.

inan. *inanimate gender.*

K *Kroeber* (1911); also a few Yurok words from his unpublished notebooks.

K *Kickapoo*; quoted from own field notes.

L *Lacombe* (1874); for C not otherwise available.

M *Michelson* (1935) followed by page number.

M *Menominee*; quoted from Bl or H.

Mi *Miami*; quoted from Voegelin (1937–40).

Na *Natick*; quoted from Trumbull (1903).

O *Ojibwa*; quoted from Bl or H.

eO *Eastern Ojibwa*; quoted from Bloomfield (1957).

P *Potawatomi*; quoted from H.

PCA *Proto Central Algonkian.*

PCEA *Proto Central-Eastern Algonkian.*

pl. *plural.*

Pnb *Penobscot*; quoted from own field notes.

R *Reichard* (1925).

S *Siebert* (1941).

T *Teeter* (unpublished field notes on Wiyot); abbreviation used only when in direct contrast to R.

TA *transitive animate* (verb).

TI *transitive inanimate* (verb).

V *Voegelin* (1941).

W *Wiyot*; quoted from Teeter's unpublished field notes or else from R or K and so marked.

Y *Yurok*; quoted from Robins (in press) or else from Ha or K and so marked.

4.1 The cognates are arranged below in alphabetical order by their English glosses, and examples of the sound correspondences (**5** and **6**) are cited in terms of these glosses only. Only a few of the phonemic symbols used require special comment, viz.

WIYOT. /β/, voiced bilabial spirant. In initial position this phoneme is in free variation with /m/, but Teeter writes /β/ only in initial position and his usage is followed in this paper. There are two r-sounds, /ɾ/, voiced dental flap; /r/, voiced dental retroflex. The symbols /b d g z ž/ are used for lenis aspirated stops and affricates corresponding to /p t k c č/, fortis unaspirated stops and affricates.

YUROK. The symbol /ə/ is used for vocalic r (a strongly retroflexed sound), written /ɹ/ by Robins. In addition /ɣ/ is used for the voiced velar spirant (for comparability with Wiyot) in place of /g/, written by Robins.

The list of cognates now follows.

ARM. PCA *-θencye·- *finger, hand* (Bl Lg. p. 145); W šo·n- *have arms*; Y -sen *arm*.

BARK (verb). PCA *meki (M p. 148); Y mokʷo- and cp. also Y meɣokʷ *dog*.

BEAR (noun). PCEA *maθkw-a (S); W βokw. —Alg. nouns are followed by one of four gender-number suffixes, -a (anim. sg.), -aki (anim. pl.); -i (inan. sg.), -ali (inan. pl.).

BEAUTIFUL. PCA *melwi- (M p. 143); Y məməy(əw)-.

BONE. PCEA *waθkan-i (S); W watkaɾ-; Y wəłkə·ʔ.

BREAK. PCA *ša·kw- (ʔ) (Ha); W ti·k-; Y tikʷohs-. —For PCA cp. Sh šaʔša·kw- *breaking bones, knocking apart*; Mi šašakonamani *I crush, break it (in pieces)*.

BREAST (NIPPLE): SOMEONE'S —.[5] PCA *meθen-i (M p. 136); W βasaɾ. —For Y see SUCKLE below.

CEDAR. PCA *ki·šehk- (H 90); Y ki·ł *redwood (coastal)*.

CRY (WEEP). PCA *se·kw- (ʔ) (Ha); W -likwł-. —For PCA cp. Mi säkwiani *I cry*. But if Sh θi·kwa·ni *it rattles* is cognate with the Mi, the reconstruction should probably be *si·kw-.[6]

DAUGHTER. PCA *-ta·n-a (M p. 139); W toɾ *son, father*.

DAY. PCA *ki·šek- *day, sky* (H 91); W kažoʔy- *daytime*; Y kecoy- *to be daylight*.

DEEP. PCA *temi (M p. 146); Y tomik- *deep (of snow), thick (of fog)*.

DEER. PCA *atehkw-a *caribou* (Bl 174); W hołakw.

DIG. PCEA *wa·l- (Ha); W waluʔł *dig well* and waluł *well*. —For PCEA cp. C wâyisiw *it is hollow, concave* (L); eO wa·nekka·n *pit*; Sh wa·lʔke *digging; he dug a hole*; Mi walkiani *I dig a hole* and wali *hole, cave*; Pnb wɔ́likən *it is hollowed out*.[7]

DRINK. PCA *mene (Bl p. 98); W βaɾo-; Y menokʷolum- *gulp down*.

EGG. PCA *wa·w-i (M p. 164); W wo·ʔl *roe of salmon*; Y wo·rew *roe of salmon* and cp. also Y wəył *egg*.

ELBOW: SOMEONE'S —. PCA *meto·-Hkwan-i (-Hk-, unknown consonant cluster); W βatuk (R) and cukɾ- *do with elbow* (T). —M reconstructs *meto·škwani (p. 137), but Bl points out the impossi-

[5] This device is used to indicate that the cognates in both or all three languages are quoted in bimorphemic form. In this instance, for example, both PCA and W contain cognate prefixes meaning 'someone's' (see **4.2**) which are joined to cognate stems meaning 'breast.' It has become traditional in comparative Algonkian studies to quote inflected forms wherever possible. It is interesting that it is often possible to adhere to this tradition when Wiyot and Yurok are brought into the picture.

[6] Dunn's use of ä in Mi words is troublesome. There are clear cases where it corresponds to PCA *e, *e·, and *i·. Therefore when sure cognates are lacking (or have not been found) in the other daughter languages, Dunn's ä is open to several interpretations.

[7] The vowel symbol /ə/ as used in Penobscot is a short schwa-vowel. For convenience I have substituted the symbol /ɔ/ for the Penobscot low back unrounded vowel written /ɑ/ by Siebert (1941).

bility of reconstructing the cluster here because of discrepant reflexes in the daughter languages (p. 89).

EXCREMENT. PCA *mo·w- *soiled* (Bl Lg. p. 139); W βaʔ; Y mol. —PCA can probably also be glossed *excrement* if the inan. sg. or pl. suffix is added; cp. Sh mo·wi *manure*; eO mo·wan *droppings* (pl.).

EYE: MY —. PCA *neški·nšekw-i (Bl 39); W ɻali·ɽ; Y neylin (Ha). —The PCA form may be an old compound consisting of *neški·n- (*ne- *my*) + -šekw-; observe that there is no trace of the latter part in W or Y. Observe also that W-Y /l/ is being compared with PCA *š in *šk with loss of *k.

FAT (IS FAT). PCA *wi·lenwi (M p. 136); Y weloγ-.

FEAR. PCEA *kweʔ- (Ha); PCA *koʔ- (H 98), always with *-θ or *-t; Y ʔekʷeył- (pel) *afraid*. —In support of *kweʔ-, cp. Na quehtam *he fears it* (Hockett's PCA *koʔtamwa *he fears it*); also Mi kwätamani *I fear it*; Sh nikwta *I fear it*.

FINISH. PCA *ki·š- (H 88); W ki·t-; Y kic-(k).

FIRE. See RED.

FISH. PCA *name·w-a *sturgeon* (Bl 175); Y nepuy *salmon*.

FOOT. PCA *-sit- (Bl 377); W -e·liɬ; Y -mi·ɬ *leg* (Ha).

FOREHEAD. PCEA *meθkahtekw-i *someone's* — (S); *weθkahtekw-i *his* —; W watβaʔt *head*; Y mołkʷoh *head*. —W has apparently incorporated the third pers. pref. w- (see **4.2**) while Y has incorporated the indefinite pers. pref. m-.

FOUR. PCA *nye·w- (root), *nye·wwi (Bl 351); W ɻiyo·ʔw-. —Some Alg. languages also insert a vowel between /n/ and /y/, e.g. Sh niye·wi *four*; cp. HIDE below.

GREASE. PCA *pemi (M p. 145); W puʔm; Y pemey. —W shares with B a tendency to use a labial vowel in the neighborhood of labial consonants; cp. F pemi, but B pomis *fat* (diminutive).

HAND: DO WITH —. PCA *-en- (Bl p. 113); W -an-.

HAWK. PCA *keliw-a (H 48) *eagle*; in some lgs. *hawk*; W koʔwal-i·ɬ- (metathesis?); Y knu·u. —The resemblance between the Y word and the CA words (especially P) is striking. H quotes M kene·w *eagle*; O kiniw *eagle* (also *a kind of hawk*); P kno. Y and P share the same vocalic syncopation; cp. also LONG below.

HEAD (1). PCA *weštikwa·n-i *his* — (Bl 24); Y tə·kun *head of fish*.

HEAD (2). See FOREHEAD.

HEART. PCA *wete·h-i *his* — (cp. Bl 102 *thy* —); W watw-; Y tekʷsaʔr *heart of salmon* and cekʷs *heart*. —The PCA form is to be analyzed as *we- *his*, *-te·h- *heart*, -i (inan. sg.) but is quoted in this way because W has taken the prefix as part of the stem. Observe also that Y has /c/, diminutive of /t/, in the ordinary word for *heart* and the nondiminutive /t/ in *heart of salmon*.

HEAVY. PCA *kosekw- (H 100); W laʔγ-.

HIDE (CONCEAL). PCA *kya·- (H 124); Y həkəy-. —Some Alg. languages also insert a vowel between /k/ and /y/, e.g. Sh kiya·-.

HIP: HIS —. PCA *weθo·kan-i (M p. 154); Y weto·ʔ (Ha). —Many Alg. body-part nouns end in *-an- and some of these instances are probably the result of analogical extension, as also pointed out by Michelson (1935). Y evidence indicates that this may be one of such instances. Contrast with BONE, BREAST, LIVER where W and Y evidence suggests that PCA *-an- is not analogical.

HOT. PCA *kešy- (H 58); with *-t extension, *kešit-, e.g. *kešite·wi *it is hot*; W kłat *hot*.

HOUSE. PCA *wi·k- *dwell* (Bl p. 121), *wi·k-enki *at his house* (Bl 61); Y ʔəʔγə·k *sweathouse*. —The W word gawoʔ *sweathouse*; *under* is probably not connected.

KNEE. PCA *meketekw-i (M p. 144) *someone's* —; Y ʔəkəł.

LAND. PCEA *-axkamekwe (S); W laγaɻakw-; Y łkeł.

LEG. PCEA *wexka·c-i *his* — (S); wač-ko·č *foot*; Y wacka *foot*. See also FOOT above.

LICK. PCA *no·çkwa·- (Bl p. 89); Y kloypey- *taste*.

LIVER. PCEA *weθkwan-i *his* — (S); W watwaŗ; Y wałkun.

LONG. PCA *kenw- (H 53); W łoʔw; Y knew-. —To take care of both PCA and Y we should probably reconstruct an earlier **kenew-; PCA has lost the second vowel, Y the first. But PCA also has problems of vowel syncope not yet fully explained; observe P knosə *he is tall*, quoted by H. Cp. also the vowel syncope in the word for HAWK above.

LOUSE. PCA *ehkw-a (Bl 88); W hikw; Y mohkoh. —The initial m- in Y probably represents incorporation of the indefinite pers. prefix, and the Y vowels probably result from assimilation to *kw.

MALE. PCA *-a·pe·w- (used in secondary derivation, Bl p. 107; non-initial form existing alongside *na·pe·w-a, Bl Lg. p. 132); Y peγ- in peγił *male* and peγək *man*.

MOUTH: HIS —. PCA *weto·n-i (M p. 139); W walul; Y weluł (Ha).

MOUTH: DO WITH —. PCA *-pw- (Bl p. 114); W -oʔb- *do with mouth, teeth*. —But the W form may perhaps be connected with TOOTH below.

NAME. Pre-PCA *-i·n- (root); PCA *wi·n-l- TA, *wi·n-t- TI (Bl p. 115); W ŗi·n-; Y weγenoy- *be named*. —Bl points out that "some [verb] roots ... are derived from stems and themes, largely from nouns with the third person prefix we-" (p. 121) and cites *wi·k- *dwell* as a derivative of *-i·k- *dwelling*. I believe *wi·n- *name* (verb) is an exactly parallel instance derived from an old noun root *-i·n- with incorporated *w(e)-. Observe also that W has incorporated the first pers. prefix ŗ- (cognate with PCA *ne-) in ŗi·n-. Y, like PCA, has incorporated we-.

NECK: HIS —. PCA *wehkwe·kan-i (V; also M p. 145); Y ʔupa· (Ha). Y also has pehtun *neck* (Ha).

NEGATIVE. PCA *kaθ-, *kat- (H 23); W koʔ.

NOSE: SOMEONE'S —. PCA *mexki·wan-i (M p. 157); Y məṗəʔn.

OBVIATIVE. PCA *-ali (Bl p. 95); W -aʔl.

ONE (OTHER). PCA *kwet- ~ *kot- (Ha); W kuʔc; Y koht- (with certain classifiers). —F, C, M, O reconstruct to *nekotwi *one* (Bl 348) and *kotak- *other* (H 103) but the two stems share a common root *kot- (Haas, 1958). Other Alg. languages point to *kwet-; cp. D kwə́t·i *one*; Mi kwitaka *another* (anim.).

OTTER. PCA *nekekw-a (M p. 155); Y nepeʔwišneγ. —Here we compare PCA *n, Y n; PCA *kw, Y p. This would point to loss of *-ke- by haplology.

PENIS. PCA *-θak- (Bl Lg. p. 293); W tkat *penis* and perhaps šok (K) *clitoris*.

POT. PCA *axkehkw-a *kettle* (Bl 100); W łakokwis-o·swał; Y tkeḵʷeʔl, tkeḵʷeʔr (l ~ r symbolism). —At present only PCA *..xkehkw-, W ..kokw.., Y ..keḵʷ.. are being compared.

PRONOUN BASE. PCA *-i·l- (with several pronoun prefixes); W -i·l (with three pronoun prefixes); Y -e·ʔl (Ha) (only in ke·ʔl you sg.). See also YOU below.

PURSUE. PCA *no·cpina-; *no·cpina-tamwa *he pursues it* (Bl 20); Y noʔṗen-.

RED. PCA *meçkw- (Bl p. 120); W βas *fire*; Y mec *fire*. —But perhaps W and Y should be compared to PCA *mehš-i ~ *mehθ- *firewood* (M pp. 141–142). Or perhaps a better understanding of PCA etymology will reveal a connection between PCA *mehš-i ~ *mehθ- *firewood* and PCA *meçkw- *red*.

REDWOOD. See CEDAR.

ROCK. PCEA *-a·peθk-w- *stone, metal* (S) (Bl. p. 105); W płatk.

ROE. See EGG.

SEE. PCA *ne·w-; *ne·we·wa *he sees him* (Bl 336); Y new-, also neγw- (Ha).

SHARP. PCA *ki·n-l- (H 85); Y kʷereʔ-wey- *pointed*.

SLEEP. PCA *nepa·- (Bl p. 97); W ni·tw-.

SNOW. PCEA *mexponw-i *it snows* (S); W paṛoʔṛ (R). —The sequence *..xpon.. is being compared with W paṛ... Cp. also Y ror- *to snow* in connection with the W word.

SOAK. PCA *kent- *immerse* (H 52); W -kiːɬisw- *leach acorns*.

SON. See DAUGHTER.

SPIT. PCEA *sekw-i, *sehkw-i (?) (Ha); W pałuk- *spit out*; Y ləhpəyeɬ *spittle*. —For PCEA cp. Sh θekwi; eO sekkwi *he spits*; Na suhkou *he spits*.

SPOTTED. PCA *ketak- (H 62); W taɣa-latk-; Y təɣəʔyǩəʔəy-.

SQUIRREL. PCEA *anikw-a (Ha); Y pliːʔw (Ha). —For PCEA cp. C anikwatchâs (L); K anikwa; Sh hanikwa; Ab anik8sess (diminutive). But observe that D xániːkw points to a fricative initial consonant. No phoneme *x (apart from the prior member of a consonant cluster) is set up for PCA, but D has not been fitted in in all its details. Sh initial hV.. in hanikwa is the normal reflex for PCA initial *V.

STEAL. PCA *kɛ not- (H 50); W komar-; Y kemol- (also kem-).

STINK. PCA *pec- (?) (Ha); W piːr- (R). —For PCA cp. Mi päciani, nimbici *I stink*.

SUCKLE. PCA *noːn- (Bl p. 146); W -ṛunoč- (R); Y newon *breast* and newonoc- *suckle*. —Y may give us a hint here that PCA *-oː- comes (at times at least) from an earlier *-ewe-; cp. PCA *-o- from earlier *-we- in FEAR.

TAIL. PCA *waθany-i *his* — (M p. 162); W wadiːʔl; Y wələy.

TELL. PCA *-taːteʔl- (M p. 163); W toʔl- *talk* and dal- *talk to*; Y hecec-.

THREE. PCA *neʔθ- (root); *neʔθwi (Bl 350); W ṛiʔg-; Y nahkse-.

TONGUE: HIS —. PCA *wiːθan-i (M p. 139); W wiːt-; Y weypɬ.

TOOTH: HIS —. PCA *wiːpit- (and medial -*aːpit-) (Bl p. 119); W wapt-; Y warpeɬ. —PCA uses only *-iːpit- with the pers. pron. prefixes, *-aːpit- in other situations. The vocalism of *-aːpit- compares better with W and Y.

TREE (STICK). *-aːhtekw- (medial) (Bl p. 106); W -oːtiʔ *wood*; Y tepoː.

TURTLE. PCEA *mexkenaːhkw-a (S); Y kəɬkəh. —The PCEA stem may have incorporated the indefinite pers. pron. prefix *me-; at any rate only the sequence ..xkenaːhkw- is being compared to the Yurok word.

TWO. PCA *niːš- (root); *niːšwi (Bl 349); W ṛiʔt-; Y niʔiy- *to be two in number*.

URINATE. PCA *šeki- (M p. 148); W tiːk-al-.

VULVA: HER —. PCA *weQpan-i (?) (Ha) (Q = C other than n, s, š); Y weyłpoːł (K). Perhaps cp. also W peš (nonpossessed) (K). —For PCA cp. Sh -ʔpani.

WASH. PCA *kesiː- *rub, wipe, wash* (H 57); W kłaʔ-.

WATER. PCA *akwaː- *from water* (Bl Lg. p. 139); *kwaːp- *out of water* (H 116); Y paʔah. —Perhaps W boːk *salt water* is also to be compared.

WEEP. See CRY.

WHISTLE. PCA *kwiːškwihθ- (H 120); Y kʷeykʷeyur-, kʷəhkʷəyəc-, kʷəyəw-.

WIFE. PCA *wiːw-a (Ha); W wiːw (familiar term); Y weyonah *female*, also weɣonah (Ha). —For PCA cp. C wiːwa, M weːwan *his wife* (cited in Bl Lg. p. 295); Sh wiːwa.

WINTER. PCEA *mexkwamy-a *ice* (S); Y kipun *winter*. —The PCEA sequence *..xkwamy- is being compared to Y ..pun. For the segmentation of Y ki-, cp. Y kisen *summer*, kikyah *spring* (Ha).

WOMAN. PCEA *eθkweːw-a (S); Y w-ahpew *his wife* (Ha).

YOU. PCA *kiːl- (cp. Bl p. 116); W giːl; Y keːʔl (Ha). —Y shows plain /k/ in this word but the second pers. pron. prefix is glottalized, viz. /ǩe-/; see next paragraph.

4.2 To the above list of cognates should be added the pronominal prefixes which occur as a SET OF FOUR in all three languages. The fourth one means *someone's*. Teeter (ms.) has also shown the relationship between Wiyot and Algonkian pro-

noun plural suffixes and I have added one Yurok correspondent.

	PCA	Wiyot	Yurok
Prefixes: 1)	*ne-	ɾ-	ne-
2)	*ke-	g-	ke-
3)	*we-	w-	we-
4)	*me-	β-	me-
Suffixes: 1P)	*-ena·n	hino·ɾ	—
2P)	*-wa·w	-wo·w	-ew

Wiyot hino·ɾ *we* is an independent personal pronoun.

For some examples of the pronominal prefixes, see (MY) EYE, (HIS) TONGUE, (SOMEONE'S) BREAST in **4.1** above.

5.1 The PCA consonants were *p, *t, *k, *c, *s, *š, *θ, *l, *m, *n, *w, and *y (Bl p. 87). A few additional consonants are reconstructed as prior members in consonant clusters only (Bl pp. 88–89). Many words begin without a consonant onset for which we write Ø in the list of correspondences below. Some of these may very well go back to *h on the PA (as opposed to PCA) level. Bloomfield also uses intervocalic *h in at least one reconstruction; see HEART in **4.1**.

Wiyot and Yurok have consonant symbolism for diminutive and augmentative (Teeter; Robins). Deviation between /l/ and /r/, between /s/ and /š/, and between /t/ and /c/ (in Yurok) or /t/, /c/, and /č/ (in Wiyot) is perhaps largely governed by this factor. In Wiyot, for instance, if /l/ is normal, /r/ is either diminutive or augmentative; if /s/ is normal, /š/ is either diminutive or augmentative; and if /t/ is normal, /c/ is diminutive, /č/ is augmentative. There are traces of /t/ ~ /c/ symbolism in Algonkian, particularly in Cree (Hockett, 1956). Aside from this PCA *c is usually an alternant of *t before *i or *y.

Consonant correspondences among PCA, Wiyot, and Yurok are shown below. A tentative suggestion for a PAR (Proto Algonkian-Ritwan) prototype is made for some of the sets of correspondences. These PAR prototypes are preceded by a double asterisk (**) to distinguish them from PCA prototypes preceded by a single asterisk (*).

**p. PCA *p; W p, b; Y p. See *grease, tooth*. Also PCA and W *do with mouth, rock, snow, stink*; PCA and Y *male, vulva*.

**ṗ. PCA p; Y ṗ. See *pursue*.

**t. PCA *t (c); W t (c, č); Y t (c). See *heart, one, spotted, tell, tree*. Also PCA and W *daughter, elbow, leg*; PCA and Y *deep, head*.

**ƛ. PCA *t (c); W l (r), ɬ; Y l, ɬ. See *foot, mouth, steal*. Also PCA and W *deer, stink*; PCA and Y *knee*.

(?). PCA *t; W t; Y ɬ. See *tooth*. When W t corresponds to Y ɬ, the usual PCA correspondent is *θ; see under the PCA *θ-group below.

**l. PCA *s; W l, ɬ; Y l. See *spit*. Also PCA and W *cry, foot, heavy, wash*. More examples are needed here.

**c. PCA *θ; W t; Y ɬ. See *bone, liver, tail, tongue*. Also PCA and W *penis*.

(?). PCA *θ; Y t. See *hip*. Y t usually corresponds to PCA *t; see examples under the PCA *t-group above.

**s. PCA *θ; W s, š; Y s. See *arm*. Also PCA and W *breast*. More examples are needed here.

**č. PCA *š; W t, ž; Y t (c). See *break, day, finish*. Also PCA and W *two, urinate*.

**š. PCA *š; W l, ɬ; Y l, ɬ. See *eye*. Also PCA and W *hot*; PCA and Y *cedar*.

**k. PCA *k; W k, g; Y k. See *bone, day, finish, leg, one, pot, steal, you*. Also PCA and W *hot, negative, penis, soak, urinate*; PCA and Y *cedar, house, knee, long*. In two instances we have PCA *k, Y kʷ; the usual correspondence is shown in the PCA *kw-group below.

**x (?). PCA *k; W γ; Y γ. See *spotted*.

And in one instance PCA *kw, W γ; see *heavy*.

**ƙ. PCA *k; W g; Y ƙ. See *second person prefix*. Also PCA and Y *hide*.

**kw. PCA *kw; W k, kw, w; Y kʷ, k (before u, o), w. See *break*, *liver*, *louse*. Also PCA and W *bear*, *cry*, *deer*; PCA and Y *fear*, *head*, *squirrel*, *whistle*.

**ƙw. PCA *kw; W kw; Y ƙʷ. See *pot*.

**kʷ. PCA *kw; W k; Y p. See *spit*. For PCA and Y, see *lick*, *neck*, *otter*, *tree*, *water*, *winter*, *woman*. More evidence is needed here on the W side, but the PCA *kw, Y p correspondence seems sure.

**ƙʷ. PCA *kVw; Y ṗ. See *nose*.

**w. PCA *w; W w; Y w. See *egg*, *long*, *wife*; *third person prefix*; *second person plural suffix*. Also PCA and W *dig*, *four*, *hawk*; PCA and Y *fat*, *name*, *see*, *woman*.

**xʷ (ʔ). PCA *w; W w; Y γ. See *wife*. Also PCA and Y *fat* (2nd /w/), *house*, *male*, *see*.

**y. PCA *y; W y; Y y. For PCA and W, see *four*; PCA and Y, see *hide*.

**l. PCA *l; W l; Y l. See *pronoun base*. Also PCA and W *dig*, *obviative*; PCA and Y *fat*.

(ʔ). PCA *l; W l; Y n. See *hawk*.

**m. PCA *m; W β ~ m; Y m. See *drink*, *excrement*, *grease*, *red*, *steal*; *indefinite person prefix*. Also PCA and W *bear*; PCA and Y *bark*, *beautiful*, *deep*. —In W β and m are in frequent morphophonemic alternation; cp. W ŗ ~ n under the PCA *n-group below.

**n. PCA *n; W ŗ ~ n; Y n. See *arm*, *drink*, *eye*, *name*, *suckle*, *three*, *two*; *first person prefix*. Also PCA and W *bone*, *breast*, *daughter*, *four*, *do with hand*, *sleep*, *snow*; *first person plural suffix* (two instances); PCA and Y *fish*, *long*, *otter*, *pursue*, *see*. —If W *long* is cognate with PCA and Y, it shows ł for n; cp. the reflexes in the next paragraph.

**N. PCA *n; W l; Y l (r), ł. See *mouth*. Also PCA and W *tail*; PCA and Y *lick*, *sharp*, *squirrel*, *vulva*.

h. PCA ∅; W h. See *deer*, *louse*; *first person plural suffix*. —There is no evidence as yet for the Y reflex. The Y word for *louse*, though apparently cognate, has incorporated the indefinite personal prefix m-; see *louse* in **4.1.

**ck. PCA *θk, *θVk; W tk; Y łk. See *bone*. For PCA and W see *penis*, *rock*.

**ckw. PCA *θkw; W tw, tβ; Y łkʷ, łk(u). See *forehead*, *liver*.

**ʔkw. PCA *θkw; W kw. See *bear*.

**ʔkʷ. PCA *θkw; Y hp. See *woman*.

**ʔkw. PCA *hkw; W kw. See *deer*, *louse*.

**t(i)k. PCA *xk; W čk; Y ck. See *leg*.

5.2 The above summaries of the consonant correspondences are the result of only a preliminary survey. Certain corrections and additions will surely need to be made as the work on Algonkian-Ritwan progresses. Subject, then, to such eventual corrections and additions, we can make the following preliminary charts (Charts I–III) of the consonant developments in each of the three languages starting with PAR as the base. From this point on only a single asterisk (*) is used for both PAR and PCA prototypes.

6.1 The PCA vowels were *i, *e, *a, *o (short and long); W i, e, a, o, u (a, short only; the rest, short and long); Y i, e, a, ə, o, u (e, short only; the rest, short and long).[8] All of the languages are strikingly similar in the extremely low quality of /e/ and sometimes of /o/.

[8] Robins has short /e/ only; Haas has short and long.

CHART I

PAR	PCA
*p, *ṗ	*p
*t, *ɬ	*t (c)
*ɬ	*s
*c, *s	*θ
*č, *š	*š
*k, *k̇, *x	*k
*kw, *k̇w, *kʷ, *k̇ʷ	*kw
*xʷ, *w	*w
*y	*y
*l	*l
*m	*m
*n, *N	*n
*h (initial)	ø

CHART II

PAR	Wiyot
*p	p, b
*t, *c, *č	t (c, č), d (ǰ)
*ɬ, *l, *š	l (r), ɬ
*s	s, š
*k, *k̇	k, g
*kw, *k̇w, *k̇ʷ	k, kw, w
*x	γ
*xʷ, *w	w
*y	y
*l, *N	l
*m	β ~ m
*n	ɾ ~ n
*h (initial)	h

CHART III

PAR	Yurok
*p, *kʷ	p
*ṗ, *k̇ʷ	ṗ
*t, *č	t (c)
*ɬ, *l, *š, *N	l (r), ɬ
*c	ɬ
*s	s
*k	k
*k̇	k̇
*kw	kʷ, w
*k̇w	k̇ʷ
*x, *xʷ	γ
*w	w
*y	y
*l	l
*m	m
*n	n
*h (initial)	(no examples)

There are a number of special problems associated with vowels. These are discussed first (**6.2–6.5**), and the principal types of correspondences are shown after that (**6.6**).

6.2 The problem of vowel syncopation within the Algonkian languages remains one on which little definitive research has been undertaken. Hockett believes we must look for an accentual system as the explanation (1946). Some Algonkian languages are known to have pitch accent—for instance Penobscot, an Eastern language (Haas [1936]), but no Proto Algonkian reconstructions have yet been made to take this feature into account.

Some of the cognates quoted for Wiyot and Yurok also show vowel syncopation. PCA *kenw-, Y knew- *long* point to an earlier **kenew-, the PCA form < **ken-(e)w-, Y < **k(e)new-. If W łoʔw- is cognate it too is from **k(e)new- with loss of initial k. Some other examples of vowel syncopation in Wiyot or Yurok are the following (with the vowel of PCA which is syncopated shown in parentheses): PCA *k(e)liw- *hawk*; Y knu·u. PCA *-θ(a)k- *penis*; W tkat. PCA *-a·p(i)t- *tooth*; W -apt (Y -arpeł retains the vowel, as in PCA). PCEA *..xken(a·)hkw- *turtle*; Y kəłkən. PCA *k(e)si·- *wash*; W kłaʔ.

6.3 Some PCA vowels may be the result of contraction, especially of the type *-ewe- > *-o·-, *-eye- or *-eγe- > *-i·-. Examples: PCA *no·n- *suckle*, Y newon (probably < PAR *newen). PCA *wi·n- *name*, Y weγen-oy- (probably < PAR *weyen- or *weγen-). PCA *wi·w- *wife*, Y weyonah, or weγonah (Ha) (probably < PAR *weye.. or *weγe..).

6.4 Nonrounded vowels sometimes become rounded vowels in the neighborhood of labial consonants. This sometimes happens in one or the other Algonkian language as well as in Wiyot and/or Yurok. Examples: PCA *meki *bark*, but Y mokʷo- (and the labialization of Y /k/ may be secondary also). PCA *temi *deep*, but Y tomik. PCA *pemi *grease*, Y pemey, but W puʔm; cp. also Algonkian Blackfoot pomis *fat* (diminutive). PCA *kemot- *steal*, Y kemol-, but W komar-.

A related feature is the tendency for PCA *kwV.. to vary with *ko.., e.g. PCA

*kwet-, *kot- *one, other*; PCA *kweʔ-, *koʔ- *fear.*

Yurok reflects the same tendency, particularly when the PCA sequence *-kwa(·)n- or *-kwam- is involved, e.g. PCA *-štikwa·n- *head*; Y tə·kun. PCA *weθkwan- *liver*; Y wəlkun. PCA *..xkwamy- *ice* (under *winter*), Y ..pun. But when the PCA sequence *-an- is NOT preceded by *kw, the Yurok correspondent appears to be /ə/ with loss of *n, e.g. PCEA *waθkan- *bone*; Y wəlkəˑʔ. PCA *waθany- *his tail*; Y wələy.

6.5 Vowel harmony is particularly prominent in Yurok where /ə/ tends to induce all other vowels in a word to assimilate to it. See the last two examples in the preceding paragraph and also the following: ɬe-luɬ *your mouth*, but ɬə-ʔəkəɬ *your knee*; tepo· *tree*, but təpə·nəƥ *fir tree.*

6.6 Because of the problems associated with syncopation, contraction, assimilation, and harmony, the PAR prototypes for vowels are even more tentative than those suggested for the consonants. There are also two other difficulties which stand in the way of a definitive statement about vowel correspondences:

(1) Although PCA vowels can be fitted into a system of four short and four long (*i, *e, *a, *o) vowels, we can by no means be sure that the Eastern and Plains Algonkian vowels will fit this pattern. It is not inconceivable that Proto Algonkian may turn out to have a quite different vocalic system (say five short and five long, or three short and three long, or even a nonsymmetrical system for short and long). Therefore until the Proto Algonkian vocalic system and accentual system (if any) has been worked out, we can do no more than make a stab at comparing PCA vowels with Wiyot and Yurok vowels.

(2) The last remaining speaker of Wiyot does not remember all of the items obtained by earlier recorders (Reichard, 1925; Kroeber, 1911). Some of these earlier items are useful for comparison, but the attempt to convert these earlier recordings into a modern phonemic orthography can only be an approximation at best. But to leave them unconverted would only lead to confusion worse confounded since any given symbol might have to be interpreted in as many as three different ways depending on who did the recording. There are also a few minor discrepancies (particularly in vowel length) in the several Yurok recordings that are available to me, but they are much less troublesome than the variations in the Wiyot recordings.

In view of the handicaps just described only a rough approximation of the PAR vowel prototypes can be set forth at present. This is as follows:

**i. PCA *i; W i (rare); Y i(·). See *foot.* Also PCA and Y *deep, squirrel.* Since PCA *i never occurs in initial syllables (Bl p. 93), the correspondences are necessarily rare.

**e (?). PCA i; Y e. See *tooth, pursue.*

**iˑ. PCA iˑ; W i(·); Y i(·). See *eye, finish, two.* Also PCA and Y *cedar.*

**eɣe, **eye. PCA iˑ; W iˑ; Y eɣe, ey(V), e(·), əy(V), ə(·). See *name, pronoun base, tongue, wife.* Also PCA and Y *fat, house, sharp, whistle.*

**e. PCA *e; W i (or u, o, secondary); Y e, ə (or o, secondary). See *grease, louse, one, pot, spit, steal.* Also PCA and W *first plural suffix*; *three*; PCA and Y *bark, beautiful, fear, knee, otter.*

**eˑ. PCA *e; W iˑ. See *sleep, soak, stink, urinate.*

**ɛ. PCA *e; W a; Y e. See *drink, mouth, red.* Also PCA and W *breast, deer, hand, heavy, rock.*

**eˑ. PCA *eˑ; W (?); Y e. PCA and Y *heart, male, see, neck, woman.* PCA *e· corresponds to W o· in *four*, but o· is probably secondary (< *e·) due to the presence of a following labial consonant.

**a(·). PCA *a(·); W a; Y a, ə. See *bone, spotted, tail* (1st V), *tooth.* Also PCA and W *dig, obviative.*

**o(·). PCA *a(·); W o(·); Y a, o· (?). See *egg, leg*. Also PCA and W *bear, daughter, deer, negative, tree*; *first person plural suffix*; PCA and Y *vulva* (?).

**u(·). PCA *o(·); W a; Y o. See *excrement, steal*. Also PCA and Y *hip, lick, pursue*.

**ewe. PCA *o·; W u; Y ewV. See *suckle*; also *mouth* if Y u is reduced from *ewe (as in W). Also PCA and W *elbow*.

**we. PCA *we ~ *o; W u; Y we ~ o. See *one*. Also PCA and Y *fear*.

7. The consonant and vowel prototypes tentatively suggested in **5** and **6** make it possible to propose actual reconstructions for some of the cognates listed in **4**. These are divided into three groups depending on whether a given PCA form has cognates in both W and Y or in only one of the two. Starred forms in this section are tentative PAR.

Special abbreviations used below are: H (unknown first consonant in cluster); C (other unknown consonant); V (unknown vowel); .. (a noncomparable vowel, consonant, or sequence); / (used to separate dual reflexes).

7.1 PCA, W, and Y: *-sen ~ *-so·n (?) *arm*; *wackan *bone*; *čV·kw- *break*; *mɛnV *drink*; *wo·.. *egg*; *mu.. *excrement*; *neš-(k)i·n *my eye*; *ki·č- *finish*; *..ɬiλ *foot*; *mɛckʷaHt *someone's forehead*; *wɛckʷaHt *his forehead*; *pemey(e) *grease*; *kel/nVw *hawk*; *wɛte(·).. *his heart*; *wɛt(i)ko·t *leg (foot)*; *wɛckwan *liver*; *kenew- *long* (W ł unexplained); *heHkw *louse*; *meHkw (var. with *m-; see Y) *louse*; *wɛλ(e)weN *his mouth*; *(w)eγen- *name*; *kwet- *one*; *..keHkw.. *pot*; *-i·l, *-eyel *pronoun base*; *mɛs/t- *red* (if W and Y are compared to PCA *firewood*); *ɬekʷ- *spit*; *..taxʷ- *spotted*; *kemuλ- *steal*; *newen *suckle*; *wacany- *tail*; *ne.. *three*; *wi·can-, *weyecan- *tongue*; *wa(·)pet/c- *tooth*; *-o·Htekʷ.. *tree*; *ni·š- *two*; *weγe(w)- *wife*; *ki·l, *keyel *you*. Also *ne- *my*; *ke- *thy*; *we- *his*; *me- *someone's*.

7.2 PCA and W: *moHkw *bear*; *mɛsɛn *breast*; *le·kw- *cry*; *-to(·)n *daughter (son)*; *hoλɛkw *deer*; *wa(·)l- *dig, dig well*; *mɛt(e)weHkw- *elbow*; *nye·w- *four*; *-ɛn- *do with hand*; *..ɬek(w) *heavy*; *k(V)š.. *hot*; *ko.. *negative*; *-ol(i) *obviative*; *-cak- *penis*; *..p(C)ɛck- *rock*; *ne(·).. *sleep*; *(me)pun.. *snow*; *ke(·)N.. *soak*; *pe·x- *stink*; *še·k- *urinate*; *kVɬ.. *wash*. Also *heno(·)n *first person plural*.

7.3 PCA and Y: *meki *bark* (verb); *ki·š.. *cedar*; *temi.. *deep*; *we(γe)le.. *fat (is fat)*; *(ʔe)kwe.. *fear*; *-ti(·)kwa·n *head*; *ky.. *hide (conceal)*; *wet/co· *his hip*; *xʷeγek- *house*; *-keλ- *knee*; *..pe(·)xʷ- *male*; *-kʷe(·)ht/kan *neck*; *meHkʷan- ~ *meHkVwan *someone's nose*; *nekʷe.. *otter*; *no(·)Hp̓en- *pursue*; *ne(·)w- *see*; *keγeN- ~ *kwe(γe)N- *sharp*; *(kʷ)aNi(k)w ~ *(kʷ)Ni·(k)w *squirrel*; *(meH)keN(a·H)k.. *turtle*; *..kʷa(·).. *water*; *kweye.. *whistle*; *(meH)kʷam *winter (ice)*; *eHkʷe·w *woman*.

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A COMPARATIVE SURVEY OF CALIFORNIA PENUTIAN

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1. Introduction
2. Correspondences
3. Lexicon
4.1. Consonant correspondences
4.2. Vowel correspondences
4.3. Diffusion
4.4. Reconstructions

1. In the discussion which follows, the term Penutian will be used to designate the languages of California to which Dixon and Kroeber originally applied the name,[1] i.e., the Wintun, Maidun, Yokutsan, Miwokan and Costanoan families. The implication of genetic relationship among these families is one of the concepts to be considered and evaluated in this paper.

When Dixon and Kroeber proposed a combination of these five families into a new stock, their conclusions were arrived at, almost unwillingly, on the basis of a high frequency of resemblant lexical forms. Some morphological comparison was also attempted. This hypothesis of genetic relationship has been accepted by Radin,[2] Sapir,[3] Whorf,[4] Shafer,[5] Swadesh,[6] and Hymes.[7]

In his classification of North American Indian languages, Sapir expanded the Penutian group to include a large number of otherwise unassigned languages of the Pacific Coast north of California as well as some of the languages of Mexico. This larger grouping was based mainly on morphological similarities along with some lexical resemblances.

Shafer, in two articles in IJAL, made an attempt to untangle some of the sound correspondences for the original Penutian languages. His appraisal took fair cognizance of the considerable problem involved. It was the first attempt to search for regular sound correspondences but, as he himself recognized, the effort was hampered by the relatively inadequate quality of the descriptive materials to which he had access.

More recently, Swadesh has used the Penutian languages as subjects for the testing of certain methodological innovations in comparative linguistics. His research has resulted in the proposal of a large linguistic grouping which he calls 'Penutioid', the member languages of which are scattered from Canada through to the Andean area of South America.

All of the above investigations have relied on scant and often poorly recorded descriptive material. Even the latest of these—the work of Swadesh—is based on brief wordlists, usually unphonemicized and almost always morphologically unanalyzed. The only modern synchronic descriptions available are Stanley Newman's Yokuts[8] and L.

[1] R. B. Dixon and A. L. Kroeber, Linguistic Families of California. UCPAAE 16.47–118. (1919).

[2] Paul Radin, The Genetic Relationship of the North American Indian Languages. UCPAAE 14.489–502. (1919).

[3] Edward Sapir, Central and North American Languages. Encyclopedia Britannica, 14th Edition, 5.138–141. London and New York. (1929).

[4] Benjamin Lee Whorf, The Comparative Linguistics of Uto-Aztecan. AA 37.600–608. (1935).

[5] Robert Shafer, Penutian. IJAL 13.205–219 (1947); Notes on Penutian. IJAL 18.211–217. (1952).

[6] Morris Swadesh, Perspectives and Problems of Amerindian Comparative Linguistics. Word 10.306–332. (1954); Problems of Long-Range Comparison in Penutian. Lg 32.17–41. (1956).

[7] D. H. Hymes, Some Penutian Elements and the Penutian Hypothesis. SJA 13.69–87. (1957).

[8] Stanley Newman, Yokuts Language of California. VFPA 2. New York (1944).

S. Freeland's Sierra Miwok.[9] No lexicon has ever been published to supplement either of these descriptions.

Penutian investigations have followed a pattern of supplying to the literature new and bold, but undemonstrated, hypotheses of wider and wider relationships,[10] while those suggestions already in the literature have stood uninvestigated for the last half century. Mere speculation based on the use of imaginative techniques which are themselves open to question is of doubtful value. One cannot use a suspect technique to establish a relationship nor a hypothetical relationship to validate a technique. It is now appropriate to begin in a more thorough way to examine some of the proposed linguistic affiliations by applying rigorous comparative methods insofar as it is possible. Penutian investigations have more to gain from comparisons initiated at the closest level of genetic connection than they do from those proceeding in the reverse direction. The predication of any stock is based on the correspondences between its members and not on undemonstrated wider affiliations with exterior languages.

Only now are we beginning to collect extensive and accurate material on the Penutian languages. Until this work is carried forward and the pertinent data are made available, the nature of the genetic relationships, even within the smaller family groupings, cannot be clarified, nor can the families as such be unequivocally established on a genetic basis. No series of sound correspondences has been published either between or within the Penutian families. Neither phonological nor morphological cognates have been demonstrated. Further, the significant factor of diffusion has remained uninvestigated, even though the borrowing of linguistic material undoubtedly plays an important role in the development of the relationships to be examined here.

But even at the closest level of genetic relationship difficulties beset the investigator. One of the families (Costanoan) is extinct and the other four are rapidly becoming so. In these circumstances much of the lexical richness characteristic of living languages is forever gone. Only by rigorous methods can adequate reconstruction be accomplished from raw data such as those available in Penutian.

Our goal is the establishment of regular correspondences among the five families and, concurrently, the identification and analysis of diffused material in the various languages. By this means we hope to demonstrate what genetic relationships do, in fact, exist among these languages.[11]

2. The tentative consonant phonemes so far demonstrable for Proto California Penutian (hereafter written PCP) are listed below, along with the number of sets which occur in the lexicon as presumed reflexes for

[9] L. S. Freeland, Language of the Sierra Miwok. IJAL Memoir 6. (1951).

[10] Specifically, Sapir, Whorf and Swadesh, opera cit., and Edward Sapir and Morris Swadesh, Coos - Takelma - Penutian Comparisons. IJAL 9.132–137. (1933).

[11] The sources from which the data in the present paper were obtained are: A. L. Kroeber, The Yokuts Language of South Central California, UCPAAE 2 (1907); A. L. Kroeber, The Valley Nisenan, UCPAAE 24 (1929); Madison S. Beeler, Saclan, IJAL 21.201–209 (1955); and the following unpublished MSS. Barrett, S. A., Patwin field notes; Bright, Elizabeth, Patwin field notes, Survey of California Indian Languages; Broadbent, Sylvia, (a) Southern Sierra Miwok and Chukchansi Yokuts field notes, (b) reconstituted forms for Rumsen Survey of California Indian Languages; Callaghan, Catherine, Lake Miwok and Plains Miwok field notes, Survey of California Indian Languages; Lamb, Sydney, Yuki and Huchnom field notes, Survey of California Indian Languages; Lee, Dorothy, Wintu lexicon; Newman, Stanley, Yawelmani Yokuts lexicon; Pitkin, Harvey, Wintu and Nomlaki field notes, Survey of California Indian Languages; Shipley, William, Maidu and Konkow field notes (supported in part by Wenner-Gren Foundation grant), Survey of California Indian Languages; Uldall, H. J., Nisenan texts, made available through the courtesy of the American Philosophical Society.

each phoneme:

*p (29)	*t (39)	*č (21)	*k (44)	*q (21)	*ʔ (10)	
*pʰ (13)	*tʰ (8)					
*b (17)	*d (10)					
	*s (26)		*x (10)		*h (11)	
	*ʎ (27)					
*m (34)	*n (34)					
*w (23)		*j (14)				
	*l (66)					
	*r (6)					

Two PCP clusters have also been reconstructed: *kw (10) and *nt (5). All of the PCP phonemes approximate the phonetic qualities of the reflexes they represent except *ʎ which is a convenient cover symbol for a set of greatly divergent reflexes.

At the present stage of our analysis many single items demonstrate unexplained reflexes in otherwise acceptable sets. Some of the reflexes of this type will ultimately prove to be spurious. Others, however, are doubtless valid and attributable to unknown conditioning factors. All such special reflexes stand in the present lexicon and are included parenthetically in the formulas which follow:[12]

*p: Mm p, Ww p, Wp p, Yy b (p), Ych p, Mil p, Mip p, Mics p, Miss p, Crr p.

ANT, BELLY, BOY, CHIEF (i), CHILD (1), DOVE, TO EAT ACORN SOUP, EEL, FINGER, FRIGHTENED, FULL, GRANDFATHER, GRASS, HOT, IN-LAW, TO KISS, LIGHTNING, LION, OAK, POISON OAK, POND, THIS, THREE, TO TIE (2), TOBACCO, TOUGH, TWO (1), VAGINA, WOMAN (1).

*pʰ: Mm p- Ww pʰ-, Wp pʰ-, Yy p, Ych pʰ-, Mil pʰ-(p-), Mip p-, Miss p-, Crr p-.

ABOVE (1), TO BLOW, TO BOIL, EGG (2), FEATHER, TO FLOAT, HEAT, HILL (1), KNEE, TO KNOW, BODY LOUSE, TO SWELL, THREE.

*b: Mm b-, Ww b, Wp b-, Yy -b-, Mip -pp-, Miss p-.

OLDER BROTHER (1), BUTTERFLY, TO DIG (1), DIMINUTIVE, DOWN (1), TO DWELL, EARRING, TO EXHORT, FOOD, IMPERATIVE, LEAF (1), MORROW (1), SALT (1), TO SIT (1), STORY, STUMP, WOOD.

*m: Mm m, Mk m, Mn m, Ww m, Wn m, Wp m, Yy m, Ych m, Mil m, Mip m, Mins m, Mics m, Miss m, Crr m, Cm m.

BREAST, TO BURY, CEDAR, CLOVER, TO COUGH, TO DANCE, DAY, TO DRINK (2) (two occurrences), FACE, FIVE, FLY, FOG (1), GRANDMOTHER, HAIR (2), INDIAN (1), TO KNOW, TO MAKE, MILK, MOON, MORROW (2), MOUTH (1), NEGATIVE, OWL (2), REDWOOD, SHAMAN, TO SMOKE, SQUIRREL, THAT (1), THIGH, THOU, THUNDER, WHO, WOMAN (2).

*w: Mm w, Mk w, Ww w, Wn -u-, Wp w, Yy w (-u), Ych w (-u-), Yt -u, Mil w, Mip w, Mics w, Miss w, Crr w, CPmr w.

BLUE, BRAIN, TO CHEW, CHIN, COTTONTAIL (2), COYOTE (3), CRANE, CREEK, TO CRY, FOG (2), FOX, FROG, GREEN (1), HIDE (2), HOWL, LIGHTNING, LOOK, MEDICINE, OLD LADY, RIVER, TO RUN, TO SEEK, TO SPEAK.

*t: Mm t, Mk t, Mn t-, Ww t, Wn t-, Wp t, Yy t (ṭ-, -d), Ych -t- (s-), Mil t (ṭ), Mip t, Mics t-, Miss t (-ṭ-), Crr t-, Cm t, Csjb -ṭx-, Csj -c-.

AGENTIVE (two instances), BLACKBIRD, OLDER BROTHER (2), YOUNGER BROTHER,

[12] The following abbreviations are used for the various languages and dialects: C *Costanoan family*, Cm *Mutsun*, CPmr *Proto Mutsun Rumsen*, Cr *Rumsen (Henshaw)*, Crr *Reconstituted Rumsen*, Cscl *Santa Clara Costanoan*, Cscr *Santa Cruz Costanoan*, Csjb *San Juan Bautista Costanoan*, Cs *Soledad Costanoan*, Hu *Huchnom*, M *Maidun family*, Mk *Konkow*, Mm *Maidu*, Mn *Nisenan*, Mi *Miwok family*, Mico *Coast Miwok*, Mics *Central Sierra Miwok*, Mil *Lake Miwok*, Mins *Northern Sierra Miwok*, Mip *Plains Miwok*, Misac *Saclan Miwok*, Miss *Southern Sierra Miwok*, PM *Proto Maidun*, PW *Proto Wintun*, P *Pomo*, W *Wintun family*, Wn *Nomlaki*, Wp *Patwin*, Wt *Trinity County Wintu*, Ww *Wintu*, Wa *Wappo*, Y *Yokutsan Family*, Ych *Chukchansi Yokuts*, Ychaw *Chawchila Yokuts*, Yk *King's River Yokuts*, Yp *Poso Creek Yokuts*, Ys *Sierra Yokuts*, Yt *Toltichi Yokuts*, Yy *Yawelmani Yokuts*, Yya *Yaudanchi Yokuts*, Yu *Yuki*.

BUCKEYE, TO BURN (2), CHILD (1), COCOON RATTLE, CRADLE, DICE (two instances) FATHER, FEATHER (1), FINGERNAIL, FOG (2), FROG, FROST, GRASSHOPPER, GREEN (2) HAIR (2), HOLE (2), IN-LAW, LEAF (1), LEG, LITTLE, LOCATIVE, HEAD LOUSE (1), OWL (1), RACCOON (two instances), TO REST, TO ROAST, SHAMAN, SPINE, STUMP, TO THINK (2), TO TIE (2), TWO (2).

*t^h: Mm t, Ww t^h- (t-,) -t-, Wp t^h- (t-), Yy t, Ych t^h, Mil ṭ- and -t-, Mip t, Mins ṭ-, Mics ṭ-, Miss t-, Crr t, Cm t-.

COTTONTAIL (1), DANCE, EAR, FIRE, TO SPIT, THUNDER, TONGUE, WEASEL.

*d: Mm d-, -d- and -n, Ww d-, -d- and -l (-r-), Mil t- and -dd- (-ṭ-), Mip t-, Miss -tt- (-n-).

BLOOD, CEDAR, END, TO FALL, HEAD LOUSE (2), HEART (1), NECK, STICK, TO TIE, TO WIPE.

*s: Mm s, Mk s, Mn s-, Ww s, Wn s-, Wp s, Yy s (ṣ), Ych š- and -s- (ṣ-), Mil ṣ-, -ṣṣ- and -s, Mip s-, Miss s, Crr ṣ (s).

CHICKEN HAWK, CHIPMUNK, COCOON RATTLE, TO DIG (2), TO DWELL, EAGLE, ELK, FINGERNAIL, FIRE, FORMERLY (2), GALL, LEAF (2), LUMINARY (two instances), MOUTH (1), OLD LADY, REDWOOD, TO SMOKE, SPINE, SPIRIT, TO STAY, STICK, STREAM, TESTICLES THIRST, THREE.

*ƛ: Mm h (ʔ), Ww s (ɬ-, ƛ̓- and -l-), Wn s- (ɬ-), Wp s (ɬ-), Yy ṭ- and -l-, Ych s-, Ys s-, Mil h- (ṣ-, -ṭ- and -l-), Mip s- and -l- (h- and l-), Mins s- or h-, Mics s- or š-, Miss h- and -l-, Crr r (ṭ- and x-), Cm r- (ṭ-), Cscl r-, Cscr r-, CPmr ṭ-.

COPULATE, TO COUGH, TO COUNT, EYE, TO EAT ACORN SOUP, FRIGHTENED, HOUSE (3), TO KILL, TO LEAD, LUNGS (two instances), NOSE, TO PACK, RATTLESNAKE, ROCK, ROTTEN SALIVA, TO SEE, TO SIT (2), SKUNK, TO SMELL, SNAKE, SPIRIT, STAR (2), TO STINK, TO WEAVE, TO WHISTLE.

*n: Mm n, Ww n, Wn -n-, Wp n, Yy n, Ych n, Mil n, Mip -n-, Mins -n- (-ŋ-), Mics n, Miss -n- (-nn- or -ŋŋ-), Crr n.

ABOVE (1), ALLATIVE, APPROACH, ARROW, BASKET, YOUNGER BROTHER, TO COME, EARRING, EEL, EGG (1), ELDERBERRY, EXCREMENT, EYEBROW, FOREHEAD, HEART (2), I, MEDICINE, MORROW (1), MOTHER, MOUSE, NEGATIVE, NOSE, NOW, OAK, RAFT, SIDE, THAT (2), THINK (2), THOU, THREE, TO TIE (2), TWO (1), URINE, WHO.

*l: Mm l (-w), Mk l, Mn l (-d- and -w), Ww l (ɬ-, -d- and -y), Wn l, Wp l (-y-), Yy l (-w or -y), Ych l (-n-), Mil l (-y-), Mip l, Mins -l- (-yl-), Mics -l- (-yl-), Miss l (-wly- and -w or -y), Crr l-, -r- and -r (-y- or -w- and -y).

ABOVE (2) (two instances), BLACK, TO BLOW, TO BOIL, OLDER BROTHER (1), BUCKSKIN, BUTTERFLY, CHILD (2), CHIPMUNK, CLOVER, COALS, COTTONTAIL (2), COYOTE (1), CRAWL, DEAF, DOVE (two instances), EAGLE ELBOW, FEATHER (2), FISH, FOOT (1), GOPHER, GOOSE (two instances), HAIR (2), HIDE (1), HIDE (2), HILL (1), HILL (2), HOLE (1), HORN, HOT, HOUSE (2), TO LEAD, LEG, LIGHTNING, LIVER, LONG AGO, MOUSE, NECK, NO, OAK, TO OPEN PODS, OTHER, PAINTED, REDBUD (two instances), TO RUN, TO SEINE, TO SING, SMOKE, STAR (1) (two instances), THERE, TO TIE (1), TONGUE, TROUT, TUBE (two instances), VAGINA, VALLEYWARDS, WHITE, WOMAN (2), YELLOWHAMMER.

*r: Mm -d-, Mk -d-, Ww -r- and -r (-l-), Wp -r-, Yy -t- and -l (-ṭ-), Ych -t- (-č-), Mil -ll-, Mip -tt-, Miss -ll-, Crr -r, Cm -r-.

DIRT, FULL, BODY LOUSE, MEAT, SUGAR, TIED UP.

*č: Mm ċ (s), Mk ċ (s), Mn s, Ww c, Wn ċ-, Wp c- (ṫ-), Yy ċ, Ych ċ, Mil c (s-), Mip č, Miss č, Crr t^s- and -č-.

APRON, BLACKBIRD, BLUE, BUCKEYE, TO BURN (1), TO CHEW, TO CHOKE, DICE, DOG (1), FOG (1), HEART (1), HIDE (1), INDIAN (2), TO

KISS, KNIFE, MEAT, TO OPEN PODS, SIDE, TO SPLIT, SQUIRREL, URINE.

*j: Mm j, Mk j-, Mn -j-, Ww y, Wn y, Wp y, Yy y, Ych y, Mil j, Mip j, Mics j, Miss j (-l-).

BLUEJAY, CHIEF (1), DERIVATIVE SUFFIX, DOG (2), TO FLY, FORMERLY (1), TO GO, HOUSE (2), INDIAN (1), OLD, OLD TIME, REST, SHAMAN, TO SPEAK.

*k: Mm k, Mk k-, Mn k-, Ww k, Wp c-, -k- and -k (k^h-), Yy ƙ (g-), Ych ƙ (g- and -k-), Mil k, Mip k (h-), Mins k, Mics k, Miss k (č- and -ʔ), Crr k (ş-, -x- and -s), Cm k- (s).

ALLATIVE, BASKET, BLACK, BLACKBIRD, CHIEF (2), COCOON RATTLE, COTTONTAIL (2), CROW (two instances), DOWN (2), DRY, EAR, EEL, EGG (2), END, FISH (2), FOOT (1), FROG, GUN, HEART (1), HOLE (2), I, INDIAN (2), LITTLE, LION, LIVER, LONG AGO, HEAD LOUSE (1), OLD, ONE, OWL (1), PEEK, SEMEN, SMOKE, TO SMOKE, SQUIRREL, TO STAY, THIRST, TOOTH, WART, WATER (two instances), WHISTLE, WOMAN (2).

*x: Mm ć-, -k- and -k, Ww x- and -c- (ƙ- and -k-), Wp ć- or k^h-, -x- and -k, Yy x, Ych x (-x^w), Mil -kk- and -k, Mip -kk-.

CLOVER, CRANE, CRY, DRY, FEATHER (2), TO HAIL, MEAT, PITCH, POND, SKUNK.

*q: Mm k, Ww q, Wp k, Yy x-, -g- and -ƙ (-k- or -ƙ-), Ych x-, -g- and -ƙ (-k-), Mil k, Mip j-, -k-, and -k, Mics -k-, Miss t-, -k- and -p (-ŋ), Crr k (č-, x- and -ş), CPmr k (č).

ANKLE, ARROW, BUTTERFLY, CONJUNCTION, TO COUGH, CREEK, DIRT, ELBOW, FINGER, TO GO, GOOSE, HILL (1), HOLE (1), HOUSE (1), KNEE, NOSE, MOUTH (2), SNAKE, STAR (2), TOUGH, WOOD.

*ʔ: Mm ʔ, Mk ʔ, Mn ʔ, Ww ʔ, Wp ʔ, Yy ʔ (h-), Ych ʔ, Mil ʔ, Mip ʔ, Mins ʔ- and -h-, Mics ʔ- (h-), Miss ʔ- (h-), Crr ʔ.

CHILD (2), COYOTE (1), DEAF, DRINK (1), EEL, FORMERLY (2), HAIR (1), OLD LADY, TO CARRY A PACK, TO ROAST.

*h: Mm h (ʔ and k-), Mk h, Mn h, Ww h (ƚ-, y-, or ʔ-), Wn h, Yy h (ʔ), Ych h, Yya h, Mil h (ʔ), Mip h, Mics h, Miss h.

BUZZARD, EGG (1), TO FLY, FORMERLY (1), INTERROGATIVE, MORROW (2), NEAR, OLD TIME, STILL, THINK (1), YES.

3. The items in the lexicon are written phonemically wherever possible. Certain symbols are thus not obvious as to phonetic content. The most important of these are: vocalic /y/ which, in the Maidun and Miwokan languages, represents a high central vowel and /c/ which always stands for [tš] except in Mil where it is [ts]. The various accent marks indicate conditions of stress, not pitch, in all the languages. The lexicon follows:

ABOVE (1). Mm ʔepín, Mk hípin, Mn hipin; Ww pan-; Yy ţipin, Ych sipin; Cscr rini.

ABOVE (2). Ww ʔole·l; Mil li·le, Miss liile ʔ.

AGENTIVE SUFFIX. Mm -toto *each other*; Ww -to·t.

ALLATIVE. Mm -nak; Mil nákah *to reach, end*.

ANKLE. Mm -sukú; Ww haqam.

ANT. Mm pyćý; Mil puţúukon.

APPROACH. Ww hina *to arrive*; Mil ʔínaj.

APRON. Wp coli; Yy ćonis.

ARM. Mm jîm; Ww ǫede.

ARROW. Mm nôƙ; Ww doqos, no·t, Wp noko.

BACK. Mm kîw; Ww yay, Wp kowa; Miss ke·wyʔ. (Note also: Yu ƙòlƙí, Hu ƙó·lkʰ, Wa ƙúllìʔ.)

BASKET. Ww ƙeni; Mil ƙéni.

BEAR. Mn ka·pa; Ww ći·l *bear meat*; Mil kúle. (Note also: Wa cícca.)

BELLY. Mm pîƚ *excrement*; Ww pot *guts*, Wp pot *guts*; Yy bidiƙ *excrement*; form reconstructed by Callaghan for Mil and Mip *pútkul; Crr †pítin. († indicates reconstitution by Broadbent.)

BLACK. Mm kulú *dark*, Mn kylý; Ww culu·li; Mil káwul, Mip kulúʔluʔ, Mins kawyylyʔ, Mics kawyylyʔ *night*, Miss kawlytoʔ. (Note also: Psw ƙili, Pc ƙli.)

BLACKBIRD. Mm ćakát; Yy ćak, Ych ćáxlàl; Mil ćakáat.

BLOOD. Mm sedé, Mk séde·, Mn sedéj; Ww te·di *red*.

BLOW, TO. Wn p^{h}u·ła; Ych p^{h}o·so?; Mil póṣṣol *lungs*, Mip póhkal, Miss pohkal.

BLUE. Mm síw *black*; Ww ćilo·w-, Wp ṫilo·ke *black*; Yy ćiyugay *green*, Ych či?iwkaẏ *green*; Mil ṣiwíi- *green*, Mip ćiwíity? *green*, Miss čiwiwwi? *yellow*.

BLUEJAY. Mm kájhísky, Mk ká·ska·s; Ww ćayik, Wp ćayet; Yy ṫayṫay, Ych ćayćaẏ; Mil ćajfik, ṣajfic, Mip sájsi?, Miss tajičču?.

BOIL, TO. Mn pól *to bubble*; Ww p^{h}ot(uma); Ych p^{h}utṁot^{h}; Mil póṣol.

BONE. Ww sa·q *blood*; Yy ćiy; Mil kíccaw *blood*, Mip kíččaw *blood*, Miss kyččyč; Crr ṫčač.

BOY. Mm ṗý; Ych poč-; Mil pútu, Mip pənée?.

BRAIN. Ww wu·; Mil wúna.

BREAST. Mm mîn; Ww ?imit, Wp ?emet; Yy minćix *milk*, Ych minič, Yya ménič; Mil múu, Mip múusu; Crr ṫmuṣ. (cf. MILK.)

BRIDGE. Mm jâk; Ww ƙawi, Wp ćo·ce; Yy će·la·lun.

BROTHER, OLDER (1). Mm béky *father* (this form is not cognate with any of the other Maidun words for father); Ww łabe·, Wph la·be-, Wpr la·ben, la·be(cu) (cu = *my*); Yy nibeć (where ni- almost certainly represents a frozen possessor in the first person).

BROTHER, OLDER (2). Mil ?atáa, Mip ?atáčči; Crr ṫtáka, ṫtáks.

BROTHER, YOUNGER. Mm ?úsu *older brother*; Ww ťes *in-law*; Yy ne?eṣ, ne?say, ne?ṣay (in this case, the ne-, like the ni- in OLDER BROTHER (1), may be taken as an old first person possessive pronominal prefix); Crr ṫtáwsis.

BUCKEYE. Mm ćá tree, Mk, cá· *tree*, Mn ća· *tree*; Ww cati *digger pine*; Cr čač, Cm čatia.

BUCKSKIN. Mm woló; Ww qu·le *elkhide*, Wph ƙolay; Yy wa·yu? (cf. HIDE (2).)

BURN, TO (1). Mm ćó; Mil cúup.

BURN, TO (2). Mm tý; Yy ťulu.

BURY, TO. Mm tâm; Ww ćum-.

BUTTERFLY. Mk báybalaƙà; Ww saysayboloq; Mil wolóolok.

BUZZARD. Mm ?ûs, Mk hy·s; Ww hu·s, Wp hu·s; Ych hos; Mil húus, Miss hu·tawe?.

CALL, TO. Mm jawí *call by name*; Ww qo(·)l *mouth, language*; Mil jájju *to ask for*.

CEDAR. Mm mân; Ww mo·ri *tamarack*; Miss mo·nok.

CHICKEN HAWK. Ych ši?wa?; Callaghan's reconstructed Mil and Mip *sýjju.

CHIEF (1). Mm jopóni *head man*, Mk jepóni; Mil hójpu, Mics hayapo, Miss haja·pu?. (Note also P húja.)

CHIEF (2). Mn húk; Wp sektu; Mip čeka.

CHILD (1). Mm té (also, tép *daughter bone in handgame*); Yy witeb.

CHILD (2). Ww ?ila·, Wp ela·y; Mins ?ehe·ly?, Miss ?eselly?.

CHIN. Mm ćawá, Mk ća·wá· *tooth*; Ww ćow *jaws*; Yy ?awaṣ, Yya awaši (possible metathesis in the Y forms); Mil héwwe, Mip hewwé?, Miss ?awa·ly· *to chew*; Crr ṫ?áwiṣ. (Note also Shasta čáwa·k.)

CHIPMUNK. Mm wísla, Mk wísla *lizard*; Yy ṗislo? *mouse*; Miss pisu?.

CHOKE, TO. Mm bićis; Ww pic-.

CLOUD. Mm já; Ww ą́a·h, Wp ƙi·r; Yy ƙiley.

CLOVER. Ww xolom *wild sunflower*, Wp sa·l; Xy xolom.

COALS. Wp wale; Yy sa·luw.

COPULATE. Mm hyćý; Ww sire; Yy ṭiťi; Cm rutus.

COCOON RATTLE. Mm soƙóť; Wph sikokay, Wpr soƙot; Miss hokohha?.

COME, TO. Mm jé; Ww hina *to arrive*, Wn hena·; Mil ?óoni (cf. TO APPROACH), Miss ?ynny·.

CONJUNCTION. Mm -ƙan *and*; Ww qa *or*.

COTTONTAIL (1). Mm telól; Ych t^{h}ew; Miss ti·we?.

COTTONTAIL (2). Mm wékkes (possibly

from *wélkes); Wp welek; Crr †weren, †weyrin.

COUGH, TO. Mm -ko; Ww q̇uh-.

COUNT, TO. Mm hém-; Ww x̌a·m-, Wn x̌a·m-; Mip léllam.

COYOTE (1). Mm ʔolél, Mn ʔole; Mil ʔóle, Mip ʔolétti?, Miss ʔahe·li?, Mics ʔaše·li; Crr †óres *bear*.

COYOTE (2). Mk héno; Ww sedet, Wp sedew.

COYOTE (3). Wt ċarawa, Wp hayu *dog*; Yy kaẏiw, Ych kaẏu?; Mil háju, Miss haju? *dog*. (Note also Wa hayu *dog* and P haiyu *dog*.)

CRADLE. Mm týty; Mil túnuk.

CRANE. Mm wáksi; Wp wa·k; Yy wa·xaṭ; Mil wáak.

CRAWL, TO. Mm lýk̇; Mil látaj.

CREEK. Ww waqat; Ych wagaẏ, wagaṫ; Mil wúwwe, Mics wakál, Miss wakalmyto?; CPmr *wak/či/os.

CROW. Mm kákka; Wp ka·k, Ych gagnaẏ, Crr †kákaru.

CRY, TO. Mm wâk; Ww waca·; Yy wa·xal, Ych waxlitʰ.

CUT, TO. Mm -k̇ys, -k̇ut; Ww x̣ic-; Yy k̇iṭi.

DANCE, TO. Mm wetém; Yy ha·tam.

DAY. Ww hima· *morrow*; Mil híi, Mip ṣémmi *yesterday*, Miss hi?e·maj. (cf. MORROW, with forms from the same word family)

DEAF. Mm ʔól; Miss ʔo·li?me? *deaf person*.

DEMONSTRATIVE. Mm hedé *near*, hadá *far*, Mn hodo *far*; Ww ʔew *this*, Wp ʔew *this*; Yy ke· *this, here*, Ych he·, hew, gew, Yw xe·; Crr †ʔewey.

DERIVATIONAL SUFFIX (verbs from nouns). Mm -j; Ww -ya.

DICE. Mm catátta *to rattle*; Miss catatta.

DIG, to (1). Mm bá; Ww (ha)pa; Ych wa· ye?.

DIG, TO (2). Mm sŷk̇; Miss sype·.

DIMINUTIVE SUFFIX. Mm -be; Ww -po.

DIRT. Mm k̇ódo *country, time*, Mn k̇odo; Ww q̇ir, Wph k̇er, Wpr k̇ir; Yy xoṭoy, Ych xučoy; Mip jóttok, Miss tolle?; Crr †čire.

DOG. Mm sý, Mk sy·, Mn suku; Ww sukuh, Wp cucu, Wn sukut; Ych če·xa, Yw ċe·sas; Mip čúučuʔ, Mics čukú?, Miss cukuʔ. (Note also Wa ču·ču?, Yana sūsu, Chimariko siċe and resemblant forms in other neighboring languages. Also, Spanish chucho, and Russian suka *bitch*.)

DOVE. PM *púl; Wp polok; Yy ʔuplalli, Ych ʔuplalli; Mil púllu, Mip hulúlli?, Miss ɥulu·wi?; Crr †xúnuṣim, Cm xunnun, Cscl lúlu.

DOWN. Mm kanáj, -kinu; Ww ken-, Wp cen-.

DRINK (1). Yy ʔugun, Ych ʔugno?; Mil ʔúṣṣu, Mip ʔússu, Miss ʔuhu·; Crr †uk.

DRINK (2) Mm mo.ˀ, môm *water*, Mk mó, also móm *water*; Ww me·m *water*, Wn mem *water*, Wp me·m *water*, Wpr me·mol.

DRY. Mm -k̇ál; PW *kʰon-. (Note also Yu kŏn.)

DUCK. Mm wát-, Mk ha·tma; Wph kʰay; Yy haẏna; Mil wátmaj, Mics hát, Miss wallaj.

DWELL, TO. Mm bís; Ww bó ~ -be *locative auxiliary*, bo·s *residence*.

EAGLE. Wp su·l; Yy ṭoxiṫ, Ych wiwšuṫ; Crr †ṣiʔirx.

EAR. Yy tuk̇, Ych tʰúk̇; Mil ʔálok, Mip solóotoʔ (perhaps with metathesis), Mins ṭookošuʔ, Mics ṭookošuʔ, Miss tolkoh; Crr †tuxs, Cm tuksus.

EARRING. Mm bonó *ear*; Wp bono.

EAT. PM *pé; PW *ba-. (Note also Wa paʔ, and Yana bêʔna- *eat mush with hands*.)

EAT ACORN MUSH. Mm húp; Ww łúp.

EEL. Wp ʔopenek; Mil ʔupúnnik.

EGG (1). Ww łu·; Yy hon, Ych hoṅ; Miss hoŋŋuʔ. (Note also Yu hx̌ and Hu kx̌.)

EGG (2). Mm pákpák, Mk pákpak; Wp pʰakpʰak; Mil pʰákpʰak.

ELBOW. Mm sûk̇ *wrist, ankle*; Ww haqa(m), Wp ċokel, takel; Yy ẓigiw; Mil ṣíplik; Crr †kúluṣ (metathesis?).

ELDERBERRY. Mil kíṭen; Crr† čín(in)an *elder tree*.

ELK. Wp sawa·to; Yy sohgoy; Mip háalu.

END. Mm kân; Ww keru- *to finish*, ʔakal *used up*; Mil kéṭut.

EXCREMENT. Ww ć̣ina, Wp ṭ̌ena; Mil kúnuh *defecate*, Mip kýna.

EXHORT. Mm betèj *declaim*; Ww bic-.

EXHORTATIVE. Mm -peʔe; Ww -bo-.

EYE. PM *hí·n; Ww łuy *egg*, Wn łuy *eye*, łut *egg*, Wp si·n *forehead*; Mil ṣút, Misac sette (but Beeler is uncertain about the reading of the vowels in this form), Mins sunty ʔ, Mics sytty ʔ, Miss hynty ʔ; Crr xin. (Note also Yu hûnt *forehead*. The forms in this set are part of a word family which includes EYEBROW and FOREHEAD given below.)

EYEBROW. Mm hinískylyly; Wp sinć̣eki; Yy ťimiṭ; Mip sempúkkaj; Crr ṭṣyímpur.

FACE. Mm mussú; Mins ma·kašy ʔ, Mics ma·kašy ʔ, Miss mattalki ʔ.

FALL, TO. Mm -daw; Ww dil-, also ṭ̌al.

FAT. Mm hŷť; Ww hu·(m), Wp hu·(m); Yy hixna ʔ *a fat one*; Mil séṭṭa; Cm saure. (Note also Wa húmmiš.)

FATHER. Mm tátta, Mn té; Ww -ta·n-.

FEATHER (1) Mm butú *hair, fuzz*, Mk ṗoť; Wp pote; Mil pútte, Miss posa ʔ.

FEATHER (2). Ww ƙala(q); Yy xa·pal, Ych xá·pàl *wings*; Mil ṣále, Mip áale ʔ, Miss hala ʔ. (Note also Yu kʰópʰ, Hu kehs and Wa kʰapʰe ʔ.)

FINGER. Mm ć̣ípby *digit*; Ww ƙaha-, Wp ć̣opom; Yy xappal, Ych xá·pàl; Mil ƙúpum.

FINGERNAIL. Mil tíi, Mics tíssy *hand*, Miss tissy ʔ *hand*; Crr ṭtuṣ.

FIRE. Mm sá, Mk sá; Ww sas *luminary*, Wp san *sun*; Yy ṣa·pa *to burn*; Crr ṭṣoto (These items are probably in the same word family with the forms under LUMINARY below.)

FISH (1). Mm lumít *to fish*; Wpr łobe *fishnet*; Yy lopiṭ, Ych lopis; Miss lapi·saj.

FISH (2). Mil káac; Crr ṭkiniṣ/r.

FIVE. Mm máwyk̀ỳ, literally *one hand*. In Mip, Mics and Miss the word for *five* contains the element ma- even though there is no cognate word for *hand* in these languages.

FLOAT, TO. Mm py.ɛ ~ pí ~ pé *to swim*; Ww pʰo(se·la), Wp pʰow(tʰo); Yy ʔe·pi.

FLY. Wp homo·tay; Yy mo·ṅay; Crr ṭmumure.

FLY, TO. Mm káj; Yy hoyon, Yya hayin; Miss hule·ty·.

FOG (1). Mil míc-; Crr ṭmáčar.

FOG (2). Mm ťîw; Wn ťumi·.

FOOD. Mm bâť *acorn meal*; Ww ba·t; Mil wáṣṣa *coarse acorn flour*. (cf. TO EAT.)

FOOT (1). Wn kole; Yy ƙalassa ʔ *leg*; Mil kólo, Mip koló ʔ *toe*, Miss kyla·y ʔ *to dance*; Crr ṭkóro.

FOOT (2). Mm pâj; Ych páw ʔ *leg*. (Note also Yu mipé·n, Hu mipén, Wa pe.)

FOREHEAD. Mm syndaká, Mk sý·ndaƙà, Mn syn; Wp si·n; Yy ẋunu *face toward*.

FORMERLY (1). Mm hójja; Ww ho·n, Wpr hoya; Mics hoyée-, Miss hoje·non.

FORMERLY (2). Mm -ʔus-; Ww ʔus-.

FOX. Mm hâw, Mk há·w; Ww ha·w, Wp ha·w; Yy ʔawća ʔ, Ych ʔawux.

FRIGHTENED. Mm -hép; Ww ƙilep; Yy ṭe...; Mil ṣélpi, Mip selláj *afraid*, Miss hele.

FROG. Wp wata·k; Mil waṭ/ṭáak/t *sounds of a frog*. (Note also P wata ʔ, wataq̀.)

FROST. Mm ʔítyk *cold*; Wp ťo·k(oma); Yy ṭopol, Ych so·poľ, Mli tipmoṭi, Miss hityp; Crr ṭterx.

FULL. Ww par-, Wph paro·; Mil pálla.

GALL. Ww silih; Mip síwwen.

GO, TO. Mm -ƙoj, Mk -ƙoj; Ww q̀aya·, Wp ƙayi·; Yy xuľu; Mil hokťi.

GOOD. Ww cal-; Ych gay ʔis; Miss cyty ʔ

GOPHER. Mm hiló *ground squirrel*, Mk hí·lo *ground squirrel*; Ww yila(ł).

GOOSE. Mm lýlyƙ, Mk lý·lyƙ, Mn la·laƙ; Ww la·q; Ych laʔla ʔ; Mip lakáalu ʔ, Miss laŋlaŋ; Crr ṭlalk, ṭlálak. (Note also Wa lukʰ, Yana la·laki, Chimariko lalo, Shasta kararáx, P lala and lal.)

GRANDCHILD. Mm sâk; Mil cácco.

GRANDFATHER. Mm ʔópa, Mk pá; Ww ha·pa *father*; Yya baṗ, Mil pápa, Mip pá·paʔ Miss pa·pa ʔ; Crr ṭpap.

GRANDMOTHER. Yy kamić; Mil háma Miss ʔama; Crr mén.

GRASS. Mm ṕó; Mil púṭa.

GRASSHOPPER. Mm tŷl; Wp ťaram, ťarap; Yy ťa·nawuṭ, Ych ča·ṅuẃuṣ.

GREEN. Mm tít, Mk ʔe·titít; Mip čytíʔti ʔ, Miss cititti ʔ.

GUN. Ww ƙulu·l; Mil kóono. (cf. English *gun*.)

HAIL. Mm ćylý; Ww ƙil, Wp ćel; Yy xo·wiṭ, Ych xo·wis; Mil ćiwṣi, Mip sawťinə ʔ, Miss sa·wina ʔ.

HAIR (1). PM *ʔonó; Wp ʔana; Yy ʔoṭow, Ych ʔúćàw; Mics hánna-, Miss hanna ʔ; Crr †ʔuṭ, †ʔuri.

HAIR (2). Ww tomoy, Wn tomor; Mip toló ʔ, Miss tolkoh *ear*; Cscl tima, Csj timax. (Note also Yu and Hu ťól, Wa ťôl.)

HAND (1). Mm ćy- or so-; Ww se(m), Wp se(m); Mil ʔukku, Mics tíssy ʔ, Miss tissy ʔ; Cr is, Cs íssu.

HAND (2). PM *má·; PW *ma *foot*.

HEART (1). Wn ćidik; Mil ćiddidik. (Probable diffusion.)

HEART (2). Mm hôn; Ych honhoṅ; Crr †hon *lungs*.

HIDE (1). Mm -sála, Mk -sa·la; Ww ceday; Yy ćuluy, Ych ćo·nuť; Mil ṣúluk, Mip tálka ʔ; Crr ††urum, †čitul. (Note also Wa cílla.)

HIDE (2). PM *woló *buckskin*; Yy wa·yu ʔ *buckskin*; Mil kuwéelu (cf. Spanish cuero *leather*.)

HILL (1). Ww pʰúyuq; Yy puƙa·l.

HILL (2). Wn col-; Ych tuluť.

HOLE (1). Mm ʔóllolok *smokehole*; Ww holoq, Wp holok; Mil tálokʰ, Miss hollop *cave*, hollaw *hole*.

HOLE (2). Mk túk, Mip tu·ke ʔ.

HORN. Ww ćayas, Wn ƙili (ad Shafer); Yy ʔiṣiť, ʔiṣeť, Ych xoyeš; Mil kílli, Mip killi ʔ, Miss killi ʔ; Crr †či·rx.

HOT. Mm ṗilís; Ww pila·, Wp pilas.

HOUSE (1). Ww qewel, Wn ķel, Wp kewel; Ych xo ʔ.

HOUSE (2). Mm ʔûj; Mil wéeji. (If these forms should prove to be related to those in HOUSE (1), it will be possible to postulate something like PCP *kwe/oli.)

HOUSE (3). PM *hý; Ww łu·t, Wp łu·t; Yy ṭi ʔ; Miss ʔu·ču ʔ; Crr †rukwa, †rúk, Cscl ruwam. (Note also Yu hą́, Hu hą̂n.)

HOWL. Mm wo ʔó; Miss wo ʔo·ku ʔ.

HUNT, TO. Mm hún; Ww ƙodu-; Ych xoyniṅ; Mil ʔónah, Miss halki·.

I. PM *nǐƙ; PW *ni, Wp cu *my*, Wsuisun *necu *our*; Y na ʔ (all dialects); Mil kánni, Mins kanni ʔ, Mics ka·n, Miss kanni ʔ; Crr †ka, Csf kana, Cs kana, Cscr kan, Csjb kan, Cscl kan.

IMPERATIVE. Mm -be-, -pi; Ww -be ʔ.

INDIAN (1). Mm májdy, Mk májdy, Mn májdyk; Ww wi·-. Wp wi·-; Yk maye, Yt mai; Mip míiw, Mins mi·wyk, Mics miwwy ʔ, Miss miwwy ʔ; CPmr *mukwe, Ccarquin muhue [muwe], Cs mue.

INDIAN (2). Yy yokoć, Ych yúkòć; Mil kóoca.

IN-LAW, Mm pêt; Ww píte.

INSIDE. Mm ʔín; Ww ʔel-, also ʔol *above* (cf. Mm ʔo- *with the head*); Mil líile *top*, *high*, Mics líile *top high*, Miss li·le ʔ.

INTERROGATIVE-DEMONSTRATIVE. PM *he/o; PW *he/o; Yy ha·, Ych hi/a; Mi híntikaṣa *how*.

KILL, TO. Mm hé-(no); Ww ƛ̓oma; Yy ṭo·ko.

KISS, TO. Mm ćoṗót ~ ćobót; Ww-ćup-.

KNEE. Mm poƙós; Ww pʰuyeq.

KNIFE, STONE. Mm ćámmi; Ww ćebe(t).

KNOW, TO. Mm mák; Ych ṁeč.

LEAD BY HAND, TO. Mm hój; Ww se·li.

LEAF (1). Mm botó; Mip páte ʔ.

LEAF (2). Mm sâw *foliage*; Ww sala; Mi ṣáanim; Crr ʔo·ṣ.

LEFT SIDE. Mm -duk-, Mn daku; Ww tʰaw; Yy ťa·ca ʔ.

LEG. Mm tôl; Wn tole; Crr †tolz.

LIGHTNING. Mm wiṗíl (metathesis); Mip wúl ʔep, Miss willopa ʔ; Crr †wéxop.

LION. Mm pekún; Ww patet; Mip páawuk; Crr †penek *house cat*.

LITTLE. PM *ƙûť *creature*; Ww ku·ťe; Yy gudi ʔ; Mil ƙúčči. (Note also Wa kuťiya.)

LIVER. Mm kýlla, Mk kùllá; Ww kila, Wp cela; Ych k̓ó·los; Mil kúlla, Mip kylla, Miss kylla; Crr †ṣíre, Cs síde.

LOCATIVE SUFFIX. Mm -te; Ww -ti; Mil -to ~ -t, Mics -t.

LONG AGO. Ww kele·-; Mil kelác-.

LOOK, TO. Ww win-; Mil weléeṭe.

LOT OF. Mm pí; Ww bo(y); Yy mani?.

LOUSE, HEAD (1). Mil kéet, Miss ketty?; Crr †kax.

LOUSE, HEAD (2). Mm dí; Ww don(os); Yy ti?iṭ.

LOUSE, BODY. Mm pedés, Mk péde·s; Ww pʰeres, Wp pʰeri·; Yy pataṭ, Ych patis *head louse*; Crr †por *flea*.

LUMINARY. Ww sas, Wpr sas, Wph sa; Yy sasa? *eye*.

LUNGS. Mm huhú; Ww łoso, Wp kʰossul.

MAKE, TO. Mm má.ː; Ww mala·.

MAN. Mn -dy, Mk -dy, Mn -dyk; Ww -tʰu·; Ypc ţaat, Yt ţaaţi, Yk ţaaţi; Mico taiyic, Mip sáwwe, Miss tá·či? *elder brother*; CPmr *tca·re-s, Csj ţare-s, Csjb tare-c. (Note also Yu ?a·ṭát.)

MEAT. Mm sy̓(m); Ww či·r; Yy ćixil; Mil súkki, Mip hukku?.

MEDICINE. Mm wené; Wph wene; Mil wéneʰ, Mip wéne? *eye medicine*, Mics wonáa?.

MILK. Mil múu; Crr mus. (cf BREAST, also Chinook jargon múšmuš (?) *cow*.)

MOON. Ww ćana(ɬ); Mip komé?, Miss kome?; C korme, kolme (ad Shafer).

MORROW (1). Mm bének, banák *light*; Wp behna.

MORROW (2). Ww hima·; Yy hiy̓am, Ych hi·; Mil ?áwweh *morning*, Miss hi?e·may.

MOUSE. Mil ṣolókkon; Crr †čólon.

MOTHER. Mm né; Ww ne-, Wp nakʰu; Yy no?om; Crr ána.

MOUTH (1). Mm sím, Mk símmy *nose*, Mn sim; Yy sama?. (Note also Wa šíma *nose*.)

MOUTH (2). Mk k̓ómbo (from *k̓ónbo ?); Ww qo·l, Wn qo·l, Wp ko·l; Crr †xai.

NECK. Wn dol-; Mil dolóomen.

NEGATIVE. Mm -men-; Ww mina, Wn mena; Ych -men-.

NEW. Mm béj; Ww po·.

NO. Mm wíjje; Ww ?elew; Mil hélla; Crr †a/e/okwi/e, †kúey, Cm ekwe, Cscl elekic.

NOSE. Mm hí(ky) literally *smeller*; Ww łiniq *snot*, sono, Wpr łinik, Wph łenek, Wn sono; Yy ţiniḳ, Ych siniḳ; Mil húk, Mip húuk, Mins huk, Miss hukis *he smells*; Crr †?u·ṣ, Cscl léni.

NOW. Mil níh, nem *this is*; Crr †ney, Cs néni, Cscr naha.

OAK. Ww penel *black oak*; Yy ?iṗin *acorn on ground*, Ych bayiṅ *acorn*; Mil penél-*iron oak*.

OLD. Mm kêj; Ww k̓iye·, Wph ćeya·k *old man*.

OLD LADY. Mk ?ésyw; Crr †?éwisom *old man*, †?a/ewš- *old*.

ONE. PM *wyk̓te·; Ww k̓ete-, Wp ?ete-; Yy yeť, Ych yeť; Mil kénne, Mip kenáaty?, Mics keŋe?, Miss keŋŋe?.

OPEN PODS. Mm ćísyl ~ kísyl; Ww ćew-

OTHER. Mm ćâj; PW *kʰa·l.

OWL (1). Mil túkkuli, Mip tukúlli, Mins túkkuli; Crr †túkun.

OWL (2). Mk hý·hym, Mn hýmhymi; Ych hihhí·ná?; Mics ṣúkkumi? (perhaps this belongs with the forms in OWL (1)), Miss huhhumi?; Cs uumiš, Cscr umiš.

PACK, TO. PM *há·; Ww x̌o·(m); Ys so·nol.

PACK, TO CARRY A. Wp ?aba·; Yy ?a·pa·.

PAINTED. Mm bál; Ww mala· (cf. to make); Mil málak *design*.

PALM. Mm ťáťa; Ww daw.

PEEK. Mm -k̓ýj; Ww kid-, Wp kʰe·wi.

PENIS. Mm kôs; Wp yot; Yy ţoťoy, Ych šoť.

PITCH, RESIN. Mm ćakám; Ww ceki; Yy sa·xal, Ych ša·xaɬ.

PLURAL PRONOUN SUFFIX. Mm -cy ~ -ce; Ww -te·(rum).

POISON OAK. Mm pós; Ww potx̣om ~

poχom, Wp ṗokʰom.

POND. Mm pakán; Ych paxiṣ.

PUBERTY RITES. Ww bała *first menses*; Mil báła *menses*; PC *patyan *blood*.

RACCOON. Mm ʔatáta; Mil túṭe.

RAFT. Mm nýˑ (ad Dixon); Mil núu.

RAT. Mm ćúmby (with regressive assimilation?), Mk ćùmbú; Ww ćude-, Wp ťubes.

RATTLESNAKE. Mk solá; Ww x̌aˑ(q); Mil holóomaj.

REDBUD. Mm lŷl; Ww luli *flower*, Wp lol.

REDWOOD. Mm sumú *spruce*; Ww sumu(h); Crr †sumen.

REST, TO. Mm túj *sleep*; Mil túje, Mics tyyj, Miss tyˑj.

ROAST, TO. Mm ʔítus; Mil ʔítaj.

ROCK. Mm ʔó; Ww soˑ(n); Yw yakaw; Mil hoku, Mip sówa, Mipleasanton sawáˑ, Misac sagu, Mics šawaʔ, Miss hawaʔ; Crr †irek.

ROPE. Mm ḱûḱ; Ww ćeˑk.

RUN, TO. Mm welé; Ww witiˑl, Wp witiˑl; Miss hywaˑtyˑ.

SALIVA. Mm jakán; Ww łos; Mil hákkoj; Crr †rus.

SALT (1). Mm bá, Mk bá; Ww boˑ- *deer lick*.

SALT (2). Ww weˑł; Yy kuyuʔ, Ych kʰuyuʔ; Mil kójjo *salty*, Mip kójʔot *salty*, Miss kojjoʔ; CPmr *akwes, Crr †aks, †awč *salty*.

SEE, TO. PM *ćeȟé; Yy ṣiľi; Mil ʔúṭe, Mics šyjŋe, Miss hyjŋeˑ.

SEEK, TO. Mn wél; Ww win *see*; Mic welšy.

SEINE, TO. Mm ćýl; Ww suy.

SEMEN. Ww kuˑrˑ; Ych ḱes.

SHAMAN. PM *jóm, Ww yom-, Wp yomta; Mil jomťa. This is almost certainly a diffused form; cf. Wa yómmtoʔ; Pne yomta.

SHARP. Mm ťôk; Ww ćiceˑ.

SIDE. Mm ćân; Ww ćan.

SING. Mm sôl; Ww ćaˑwˑ; Mil kója; Crr †čunuy.

SIT (1). Mm byˑ.ːˑ; Ww buˑ.

SIT (2). Mm haˑ.ːˑ; Ww -łaˑ; Mil hówo; CPmr *ṭakwar, Crr †ṭakarap.

SKUNK. Mm wajʔó; Ww xóˑ; Wp kʰoˑ; Yy cox, Ych soxʷ; Crr xom *wildcat*.

SLEEPY. Mil ʔéckopaṭi; Crr étən *sleep*.

SMELL, TO (trans.). Mm hí; Ww sube, Wn suˑba.

SMOKE. Wph łelak (metathesis?); Mil káal; Cm kar, Crr †kar.

SMOKE, TO. Mm sûḱ; Mil ṣúmki; Crr †súkum.

SNAKE. Mm húsky; Ww łúq *worm*; Miss keˑhuʔ (metathesis?) *worm*.

SPEAK. Mm wéje; Yy wiyi.

SPINE. Ww sutu- *tail*, Wp soto; Yy ḳuťuṣ (metathesis?), Ych šutox.

SPIRIT. Mm ʔýs *dazed*; Ww łes, Wp seł (metathesis).

SPIT, TO. Mm ťúp; Yy tuh; Mil ṭúkih.

SPLIT, TO. Mm -das; Ww ťac-.

SQUIRREL. Wp comok; Mil cúmuk; Crr †tsumuk.

STAR (1). Mm lylý; Ww luli *flower*.

STAR (2). Ww łuyuˑq *star*, *porcupine*; Mip hollókay.

STAY, TO. Ww suk *stay*, *stand*, *remain*; Mil ṣúkuʰ.

STICK (1). Mm dý *thicket*; Mil túmaj, Mip túmaj.

STICK (2). Mm ćá *stick*, *tree*; Ww ćuˑs; Crr †tiṣ.

STILL. Ww haˑna; Mil háali.

STINK, TO. Mm híssa; Ww łala; Yy ṭikiť; Mil húkuh.

STORY. Mm betéj; Ww bol-.

STREAM, DITCH. Mm sêw *river*; Mip saˑʔa.

STUMP. Mm ʔóscum; Ww ʔoltubas; Mip toppok.

SUGAR. Mm sudáḱ; Ww xurxur; Mil kójkoj *sweet*.

SWELL, TO. Mm pú; Ww pʰowˑ, Wp pʰolti; Mil pó-.

TESTICLES. Ww siwi, Wn sewit; Crr †ṣókoṣ.

THAT (1). Mm mý; Mil máa.

THAT (2). Mm ʔaní, ʔuní *this*; Ww ʔuni; Mil née *this one*; Crr †nu-, úti *they*.

THERE. Mm ćáj *other*; Ww xa·l *other*; Crr †xúya.

THIGH. Mm máwa; Ww makas; Mil mújja.

THINK (1). Mm hú; Wn ha·l-.

THINK (2). Ww ṭipna·; Yy ṭipna *shamanistic power*; Mip tónnim, Miss tyntynny .

THIRST. Mm syk, Mk sik; Yy haṣaǩ.

THIS. Ww pi; Crr †pina-.

THOU. PM *mín; PW *mi; Y ma? (all dialects); Mi mi? (all dialects); Crr †me, Csc men, Csjb men.

THREE. Mm sáṕy; Ww panuł (analogy with TWO?); Yy ṣo·pin, Ych ṣo pin; Crr †kápes, Csc kapxan.

THUNDER. Mm -týmtým; Ww tʰumu· (kus); Miss timmele·li?.

TIED UP. Mm budú; Ww píli.

TIE, TO (1). Mm dôl; Ww doli, Wn dolla.

TIE, TO. (2). Mm pýt ~ pýn *to untie*; Mil pítkaṭi, Mics tópoon.

TOBACCO. Mm pán; Mip pá?ummá? *to smoke tobacco*, Miss pa?mu? *tobacco smoke*. (Note also NE Mono pahmuh.)

TONGUE. Ww tahal, Wph tahal; Yy talxaṭ; Ycu tʰalxas.

TOOTH. Mm ćík; Ww si·, Wp si·; Yy ṭe·yiy; Mil kut, Mip kʌ́ʌt, Miss kytty?; Cm sit.

TOUGH. Mm pâǩ *sinew*; Ww paq *bone*, paqa· *tough*, Wp pak *bone*; Yy pikil *sinew*, Ych pikiľ *sinew*; Miss pasu·ka? *sinew*.

TWO (1). PM *pé·n; Ww pa·le-, Wp pampa (by assimilation from *panpa ?), ṗan- *twins*; Yy bonoy, Ych ponoý.

TWO (2). Mil ?ótṭa, Miss ?oṭi·ko?; Crr †?utis, Csj uci, Csjb uṭxi.

TREE. Mil ?álwa, Miss la·ma?; Cm arwe. (cf. Spanish árbol, *tree*.)

TROUT. Ww súlat; Yy daľim, Mil húul.

TUBE. Mm lulú *stem of plant*, jálulu *flute*, Mk lu·l *leg*; Ww ł·lus *flute*, Wp lo·lol *flute*; Mil lulúumaj *kingsnake*, Miss lu·la? *flute*.

URINE. Mm ćú; Ww ćunus, ću·n, Wp ṭu·nu; Yy ćuyo· *urinate*; Mil ?ócoh *urinate*, Mip ?óča?, Mins ?oṭa·ŋy?. (Note also Wa tˢúpic.)

VAGINA. Ww lú·p, Wn pu·l (metathesis); Mil lúppe *mouth*, Mip lýpé? *mouth*. (cf. the meaning of Mm pỳsím ?èní *clitoris*, literally *vagina tongue*.)

VALLEY. Mm kojó; Ww ćaraw.

VALLEYWARDS. Mm kojóna; Miss ?olo·win.

VOMIT, TO. Ww ?oq(ca), Wp ?ok(ti); Yy huxus, Ych hoxšan.

WART. Ww ćitik; Mil ṣítkil, Miss senne?.

WATER. Ww kiki *ice*; Mil kík, Mip kík, Misac kiko, Mics kikky, Miss kikky?; C (all dialects) si.

WEASEL. Wph tʰasi·; Mil cáti (metathesis?).

WEAVE. Mm hís; Ww ł-.

WHISTLE, TO. Mm húk; Ww (pʰu)ɬu·ra; Mil húujak.

WHITE. Mm kó *snow*, ków *gray*, Mk ?e·koǩón, Mn kowi; Ww xa·yi; Yv djolol, Yk tcoyoyi; Mics kelélli. (Note also Yu čál, Hu čál, Wa ǩáy?il.)

WHO. Mm homón; Mil mánti; Crr †aM? (sic).

WING. Mm jé *feather*, *wing*; Ww ġa(n), Wp ǩa(n).

WIPE. Mm dá; Ww di·t.

WOOD. Mk bábaǩ *liveoak*; Ww baqi *thicket*.

YELLOWHAMMER. Ww ćilew, Wp ći·yak; Yy ṭiwissa?; Mil ćijáak, Miss tiwwaj (metathesis?).

YES. PM *heǩé; Ww ho·, Wp ?ow; Yy ho·ho?, Ych hu·hu?, Ychaw ha·ha?, Ygash ho·hó·; Miss hy·?y·.

WOMAN (1). PM *pó· *daughter*; Ww ṗo·qta, Wp ṗoketa; Mil póocci.

WOMAN (2). Mm kylé, Mk ký·le, myhéle (dialect), Mn kyle; Yy moǩiý, Ych muǩela; Mil kúlle; Crrá †xwan.

4.1. Twenty consonant phonemes are provisionally established for PCP. Over and above these there are a few lexical sets which

have consonants of infrequent and irregular occurrence in three articulatory areas: (1) those specific *glottal* correspondences containing alternations of /ʔ/ with /h/: NO, ROCK, DEMONSTRATIVE; (2) those specific *dental* or *alveolar* correspondences containing alternations of /n/ with various dental stops; MOUSE, BODY LOUSE, NEAR, RAT, FAT, END, CEDAR, MOUNTAIN, LION, EYE; (3) those alternations within the *palato-velar* area adumbrated by Dixon and Kroeber, and characterized by Shafer as 'zipper' correspondences. The majority of the irregular reflexes are of this type. Consonant symbolism—diminutive, augmentative or emphatic—is involved in these sets and, although such symbolism is well attested in some of the descriptive material, it has not yet been systematically analyzed. The vowel qualities in the immediate environments of these consonants probably account for some of the complexities. Since these two factors are not yet too well understood, it is necessary to postpone the identification of the three or four consonant phonemes which are undoubtedly present in the palato-velar area in PCP.

No evidence for glottalized consonants in PCP has been found even though three of the five constituent families have such consonants in their modern forms. Miwok and Costanoan lack glottalization except for Lake Miwok, which has a glottalized stop series of somewhat rare and restricted occurrence. It appears that glottalization may have diffused into Penutian, presumably from the north.

The segment *kw is assumed to represent a consonant cluster derived from the juxtaposition of a velar and a labial, and conditioned by the presence of a back rounded vowel or by loss of a vowel between /k/ and /w/. In all the modern languages consonant clusters occur only fortuitously and in dimorphemic combinations (the Rumsen dialect of Costanoan is an exception), and the syllable canon is CV(C). This was very likely the situation in PCP.

4.2. Four discernible vocalic situations are found in the material: (1) the vowel reflexes are identical; (2) there are front-back alternations, e.g., between /e/ and /o/, /i/ and /u/, and /i/, /y/ and /u/; (3) there is vowel harmony in disyllabic morphemes; (4) a syllable is lost. In either of the last two situations, the quality of the original vowel cannot be reconstructed at present, nor can the provenience of the numerous front-back alternations be ascertained. Both the Yokuts and the Wintun families demonstrate the presence of vowel ablaut and vowel harmony, while Maidun, on the other hand, is characterized by the frequent reduction of disyllabic forms to monosyllables.

4.3. To Boas must go the credit for insisting that diffusion is widespread among American Indian languages. Diffused elements and traits must be detected and separated before the details of genetic relationship can be worked out. The areal spread of glottalization mentioned above and the possible borrowing of the high central vowel from Uto-Aztekan into the Penutian languages of the Sierra are examples of phonemic features which may have spread into Penutian from genetically unrelated languages. We propose to exercise care, on the phonemic and lexical levels, in the segregation of such material. We have not reconstructed segments to represent these features.

Within the Penutian stock there is also evidence for diffusion of /ƛ̓/ from Patwin into Lake Miwok. This is thought to be recent and presumably has no genetic implications.

Examples of possible lexical diffusion included in the lexicon are: ALL, BACK, BEAR, CHIN, DOG, EAT, EGG (2), FAT, FEATHER (2) FOOT (2), GUN, HAIR (2), I, INDIAN (2), LITTLE, MAN, MILK, MOUTH (1), SHAMAN, THOU, TOBACCO, URINE, and bird and animal names. In the case of the pronouns, forms similar to those in Penutian are spread widely throughout North America. Items

such as CHIN, EAT, FEATHER (2), FOOT (2), HAIR (2), INDIAN, MAN, SHAMAN and URINE are strikingly similar to forms found in neighboring non-Penutian languages.[13] Some of the words, e.g., EGG (2), are probably diffused within Penutian.

It is impossible at this time to determine either the direction of the borrowing or the wider genetic affiliations of the languages participating in a set like, say, NOSE. Shipley points out that Yukian and Penutian (especially Yokuts) share as many resemblant forms as have been previously postulated for Yukian and Hokan. This is a typical context in which the question of diffusion versus common genesis is of crucial importance. The question of Yukian affiliations must be reopened with relation to the general problem of diffusion in Penutian.

4.4. An initial comparison of all five Penutian families is useful in order that the problem of subgrouping may be assayed. As Greenberg points out, reconstructions are facilitated on intermediate levels of relationship with one eye backward to the proto-language and one eye forward to the present.[14] Such general preliminary examination is not primarily designed to provide morphemic reconstructions but to indicate the smaller areas where detailed analysis would be most fruitful. Further research will proceed to extensive reconstruction of single families and binary comparisons of the families so constructed.

Some methodological problems must be mentioned:

Metathesis appears likely as a historical process in such sets as ELBOW, LIGHTNING OLD LADY, SMOKE, SNAKE, SPIRIT, TONGUE, VAGINA, WEASEL AND YELLOWHAMMER. We also have evidence of metathesis on the synchronic level. In Maidu, for example, the forms /bìčí/ and /čìbí/ are both attested for *fingernail*. The role of metathesis has been noted elsewhere by American comparativists.[15]

In a number of instances several semantically related glosses have interwoven historical developments: BLACK and BLUE; CRANE and CRY; EGG (2) and EYE; INTERROGATIVE and DEMONSTRATIVE; NOSE, SNOT and TO SMELL; LUMINARY, EYE and FOREHEAD; CHIN and TOOTH; etc.

Numerals and kinship terms are examples of serial or system elements upon which analogy may operate. The Wintu words for two and three are a case in point as are the various kinship systems in the several families (not systematically quoted in the present paper). These latter must be compared as groups, inter alia, with a good deal of shifting of glosses wherever the segmental reflexes seem to be sound.

There is much evidence to suggest that PCP, like most of the modern Penutian languages, had a disyllabic canon. The predominance of monosyllables in the reconstructions which are suggested below demonstrates clearly their provisional nature:[16]

ABOVE (1) *ƛip^{h}in, AGENTIVE *tot, ALLATIVE *-nak, APPROACH *h/ʔina, APRON *čol/ni, BASKET *keni, BELLY *pi/ut, BLACK *kulu, BLACKBIRD *čakat, BLUE *čilokwe, BRAIN *wa..., BREAST *mVn, OLDER BROTHER (1) *be..., BUCKEYE *čat, BURN (2) *tu, BUTTERFLY *boloq, BUZZARD *hus, CHILD (1) *tep, CHOKE *pič, CLOVER *xolom, COCOON RATTLE *soko..., CONJUNCTION *qa, COTTONTAIL (2) *wele, COUGH *qo/u, COYOTE (1) *ʔole, COUNT *ƛa/em, CRADLE *tu..., CRANE *wax, CREEK *waqo..., CROW *kak, TO CRY *wax, DEAF *ʔol, DERIVATIONAL

[13] William Shipley, Some Yukian-Penutian Lexical Resemblances, IJAL 23.269–274 (1957).

[14] Joseph H. Greenberg, Essays in Linguistics (University of Chicago Press 1957), page 50.

[15] Mary R. Haas, Natchez and the Muskogean Languages, Lg 32.61–72 (1956). N. b. wide, page 67.

[16] Several reconstructions have been set down on the basis of reflexes in only two or three of the languages. It is clear that such reconstructions are particularly untrustworthy. Some of them will undoubtedly be discarded in the future.

SUFFIX *-j, DIMINUTIVE SUFFIX *pe/o, DOWN *ken, DRINK (2) me/om, DWELL *bV, EAT ACORN MUSH *ƛup, EGG (2) *pʰak, FINGERNAIL *ti/us, FIRE *sa..., FLOAT *pʰV, FOG (1) *mVč, FOG (2) *tu..., FOOT *kole/o, FORMERLY (1) *hojen, FORMERLY (2) *ʔus, FOX *h/ʔaw, FORNICATE *ƛi/y/uCV, FRIGHTENED *...ƛep, FULL *par, TO GO *qVj, GRASS *po/u..., GREEN *tit, HAND (2) *ma, HEART *hon, HILL *pʰuq, HOLE (1) *holoq, HOLE (2) *tuk, HOT *pila, HOUSE (1) *qewel HOUSE (3) *ƛuC, HOWL *woʔo, I *nikan (possibly two morphemes *ni ~ *ka), IMPERATIVE *be, INDIAN (1) *mVw, INDIAN (2) *koč, IN-LAW *pVt, INTERROGATIVE *hV, TO KILL *ƛe/o, TO KISS *čo/up, KNEE *pʰo/uq, TO LEAD BY THE HAND *ƛe/oli, LEG *tol, LIGHTNING *wi/ule/op, LITTLE *kut, LIVER *kVl(l)V, LONG AGO *kel... BODY LOUSE *pʰe/orV, LUMINARY *sas, TO MAKE *ma..., MEDICINE *we/onV, MILK *mu, MORROW (1) *bena, MOTHER *ne/o, MOUSE *čolo... (cf. RAT), MOUTH (1) *sVm, MOUTH (2), *qVn/l, NECK *dol, NEGATIVE *men, NOSE *ƛVnVq, NOW *ne..., OLD *kej, OWL (1) *tukun/l, TO PACK *ƛV, PITCH *čaxa, POND *paxV, RAFT *nu, REDBUD *lul, REDWOOD *sumV, TO REST *tuj, TO ROAST *ʔitV, SALT (1) *bV, SALT (2) *kwe/oje/oC, SHAMAN *jom, SIDE *čan, TO SIT (1) *bu, TO SIT (2) *ƛakwa, TO SMELL *ƛi/u, SMOKE *kal, TO SMOKE *suk, SNAKE *ƛuq, SPEAK *wVjV, SPINE *suto, SPIRIT *ƛVs, TO SPIT *tuC, SQUIRREL *čVmVk, STAR (1) *luli, STAY *suk, STICK, WOOD *čVs, STILL *han/l, TO STINK *ƛi/u..., TO SWELL *pʰo/u, TESTICLES *se/okwV, THAT (1) *mV, THAT (2) *nV, THIGH *mVkwa THIRST *sVk, THIS *pi, THOU *mVn, THREE *sVpVn, THUNDER *tʰi/um, TO TIE (1) *dol, TOUGH *pVqV, TWO (1) *pe/on, TWO (2) ʔo/ut, TUBE *li/uli/u, URINE *ču..., VAGINA *li/up, VOMIT *h/ʔoq, WATER *kik, WEASEL *ča..., TO WEAVE *ƛis, TO WHISTLE *ƛuC, TO WIPE *dV, WOOD *baq, YES *h/ʔe/o, WOMAN (1) *poC, WOMAN (2) *kVle.

CALIFORNIA PENUTIAN: HISTORY AND BIBLIOGRAPHY

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1. Introduction
2. Establishment of individual families
3. California Penutian
4. Bibliography

1. Genetic classification and comparison of American Indian languages has always presented the linguist with many serious problems. Comparison is difficult enough when the scholar has masses of texts in the extant languages and records of some of the extinct languages, as is the case for Indo-European and Semitic. When, however, he must rely on scanty and often poorly recorded materials, his task is infinitely more complicated. Despite these and many other obstacles, both professional and amateur linguists have speculated about genetic relationships among American languages from the appearance of the first word lists and in some cases even earlier. As a result, many families and stocks have been posited with varying degrees of acceptance by authorities. California Penutian (Miwok, Costanoan, Wintun, Maidu, and Yokuts) is an interesting case in point. This paper presents a brief history of the events leading up to the establishment of this stock covering a period of almost four centuries.

2.1. Contact between the white man and the Coast Indians was first established by Spanish explorers from Mexico in the early part of the sixteenth century. The first printed reference to a Costanoan language is found in the accounts of Lapérouse's voyage around the world. Lapérouse stopped at Monterey in the fall of 1786 and remained there several days. M. de Lamanon, his meteorologist, collected brief vocabularies of Costanoan and Esselen and made a few cursory notes on their grammar.[1] Concerning the linguistic situation, Lapérouse's chronicler writes: "Je dirai, d'après les observations de M. de Lamanon, qu'il n'est peut-être aucun pays où les différens idiomes, soient aussi multipliés que dans la Californie septentrionale."[2] No one, I believe, could improve upon this synopsis of a situation which has puzzled linguists ever since.

The first Costanoan grammar was Felipe Arroyo de la Cuesta's grammar of Mutsun (San Juan Bautista Costanoan). Although he wrote it about 1815, it was not published until 1861–62, when it appeared in two parts, (1) a grammar, and (2) a phrase book of nearly 3,000 entries, edited by John G. Shea. In 1916 it was revised and reprinted by J. Alden Mason. Unfortunately Mason made changes in Arroyo's transcriptions without specifying the original orthography.[3]

Horatio Hale obtained sketchy vocabularies of some of the California Indian languages while serving as Ethnologist with the United States Exploring Expedition in 1838–42. Hale published his vocabularies in 1846. Two years later Albert S. Gallatin republished the Hale material together with vocabularies from other parts of North America. Basing his judgment on lexical resemblances alone, Gallatin set up thirty-two linguistic families in North America north of Mexico, but many unclassified languages were left over. Among the latter were La Soledad Costanoan and Ruslen (Monterey Costanoan).

Gallatin's work stimulated Robert Gordon

[1] de Lapérouse, 1797, 2.289–292. See Bibliography (4) for complete reference.

[2] Ibid., 2.289.

[3] Arroyo also gathered brief vocabularies of five languages during a visit to San Francisco in 1821, two of which (Juichun and Karkin) were Costanoan. This material has not yet been published and did not influence early attempts at classification.

Latham to establish further relationships in 1856.[4] He used the name "Costano" to designate a group of languages, including Romonan, spoken around the Mission Dolores, and pointed out the similarity of this language to Ruslen and Soledad. However, he grouped Ruslen and Soledad with Esselen, San Antonio, and San Miguel, the last three of which are now classified as Hokan languages.[5]

In 1877 Albert S. Gatschet grouped the northern mission languages into a single family which he called Mutsun. He included San Juan Bautista, Mission of Carmelo, Santa Cruz, the Costano subfamily, and Soledad. Santa Clara does not seem to be represented.[6] Gatschet based this grouping on both lexical and phonological resemblances and tentatively subjoined three Miwok languages to the family. When J. W. Powell published his master classification in 1891, he operated from lexical resemblances alone. He accepted Gatschet's Mutsun (excluding the Miwok languages), but renamed it "Costanoan" from Latham's Costano.

2.2 Miwok words may have been first recorded during Sir Francis Drake's famous voyage around the world. Drake anchored in a small bay, presumably Drake's Bay, in June, 1597 and remained there more than a month. He encountered numerous Indians, and his chronicler took down a few of their words. Unfortunately, these are difficult to identify, but they may have been Coast Miwok.[7]

In 1821 Arroyo obtained short vocabularies of Huimen (Marin Miwok) and Saclan, but they were not published at that time. Saclan has recently been identified as a Miwok language by Beeler.[8] Kostromitonow, an official from Fort Ross, published a vocabulary of Olamentke (Bodega Miwok) in 1839, and remarked that it differed considerably from languages to the north and east (Baer, 1839). Hale included two Miwok languages, San Rafael and Talatui, among his California vocabularies. Gallatin (1848) noted a family resemblance between San Rafael and some of the languages colected "by mr. Dana on the River Sacramento," one of which was Talatui, a dialect of Plains Miwok.[9] A vocabulary of Central Sierra was taken by Adam Johnson from bands of Indians residing on the Tuolumne River, and it appeared in vol. IV of Schoolcraft.[10]

In 1856 Latham united Talatui, Tuolumne, Olamentke, San Rafael, and a Sonoma dialect of Coast Miwok into a single family which he called Moquelumne after the Mokelumne River, which drains part of the area in which Plains Miwok is spoken. He also tentatively included Santa Clara and Tulare Costanoan on the basis of paternosters recorded by Duflot de Mofras (1844).[11]

Except for Latham's provisional grouping it was not until 1877 that anyone, so far as I know, suggested kinship between the Miwok and Costanoan families. In that year Gatschet pointed out similarities between his Mutsun family and Marin, Bodega, and Plains Miwok. He concluded that relationship was possible but by no means certain. Powell, in his preliminary classification of 1877, added Central and Southern Sierra

[4] Latham had Hale's vocabularies at his disposal as well as a short vocabulary of Romonan from Schoolcraft and a vocabulary of Soledad by Duflot de Mofras (1844).

[5] Johann Buschmann proposed kinship between Monterey and Soledad Costanoan in 1859 (p. 561).

[6] There may have been still other Costanoan languages spoken farther from the missions which died out without being recorded.

[7] A summary of evidence concerning the dispute over where Drake landed is presented by Heizer (1952), who concludes that he landed at Drake's Bay and spoke with Coast Miwok Indians.

[8] Beeler, 1955, p. 202.

[9] Gallatin, 1848, p. 126.

[10] Schoolcraft, 1860, 4.408–412.

[11] Gatschet mentioned a dictionary of the Sonoma dialect by Padre Quijas, who was in charge of the Sonoma Mission from 1835–1842, and Duflot de Mofras possessed a grammar of the Tulare language in manuscript form by R. P. Arroyo of Santa Inez Mission.

Miwok to Gatschet's grouping. In 1891, however, he took a more conservative stand and placed the Miwok languages in a separate family which he called Moquelumnan, once again giving Latham priority and linguists a cumbersome name.

Nevertheless, the Miwok-Costanoan problem was not settled by Powell. Kroeber and Dixon undertook extensive research on the California languages around the turn of the century. Their attempt to classify these typologically appeared in 1903. Miwok and Costanoan were placed together along with Washo, Maidu, Shasta, Achomawi, Lutuami, Wintun, Yuki, Pomo, Esselen, Yokuts, and Shoshonean into a group characterized by "Absence of pronominal incorporation, an undeveloped plural, syntactical cases, material cases, and distinct, simple, and soft phonetics."[12] Kroeber and Dixon were not, however, implying that these families of languages were genetically related. In fact, Kroeber concluded in 1910 that relationship between Miwok and Costanoan was far from certain. He also quoted Dixon's statement that "the general status and extent of borrowing between the *unrelated* families in California must be better understood before even a considerable body of similar words can be either accepted or rejected as positive evidence of relationship."[13] This observation is as valid now as it was then.

2.3. Wintun, Maidu, and Yokuts, the language families of the Sacramento and San Joaquin valleys, were discovered at a much later date than Miwok and Costanoan. An unpublished Southern Wintun vocabulary was collected by Arroyo in 1821. In 1846 Hale gave a short vocabulary of a Wintun language spoken on the Sacramento River about 250 miles from its mouth, as well as word lists of three Maidu languages (Pujuni, Sekumne, and Tsamak). A vocabulary of Copeh (Southern Wintun) appeared in vol. III of Schoolcraft (1853), followed by by a Mag Readings word list in vol. IV of the same series. Volume IV also contained vocabularies from King's River and Merced River. Latham united Copeh and Mag Readings in 1856 with Hale's Upper Sacramento into a family which he called Copeh, and he classed the three Maidu languages as Pujuni.[14] Although he pointed out the resemblance between the Copeh and Pujuni words for *water*, he failed to unite the two families. He also grouped King's River and Merced River under the name Mariposan.

In 1860 a fairly long Yokuts vocabulary appeared in the California Farmer. This had been taken by Alexander S. Taylor from a group of Indians living near Dent's Ferry in Calaveras County.[15] Gatschet, in 1877, grouped this language with several others under the family heading Yocut.[16] He also united several dialects, one of whose vocabularies he had previously published,[17] under the name Wintoon,[18] and separated the Meidoo family into two subfamilies, Meidoo[19] and Neeshenam.[20] Gatschet's delin-

[12] Dixon and Kroeber, 1903, p. 18. Statements of this kind are included to show the basis for linguistic classifications of various periods. Recent field work shows that many of these statements must be modified.

[13] Kroeber, 1910, p. 261.

[14] Latham, I am afraid, set the unfortunate precedent of naming a family of languages after one of its members.

[15] It is extremely difficult to decide which Yokuts language is represented here; the higher numerals seem totally different from those in any dialect of which we have later knowledge. Kroeber has remarked that there might once have been as many as forty distinct dialects (1907, p. 309). This could well be one of those that died out without being adequately recorded.

[16] "This tribe lives in the Kern and Tulare basins, and on the middle course of the San Joaquin River." (Gatschet, 1877, p. 158.)

[17] Gatschet, 1876.

[18] "The timid, superstitious and grossly sensual race of the Wintoons is settled on both sides of upper Sacramento and upper Trinity rivers, and is found also on the lower course of Pit River." (Gatschet, 1877, p. 160.)

[19] Here the name of a family is identical with that of a subfamily.

[20] "The Meidoo nation formerly extended from Sacramento river to the snow-line, and from Big Chico Creek to Bear river, the cognate Nee-

eation was accepted by Powell, both in his preliminary report of 1877 and in his final classification of 1891, except that Yokuts was called Mariposan, Maidu was labeled Pujunan, and Wintun was named Copehan, once more giving priority to Latham.

3.1. The extensive work at the turn of the century resulted in publication of grammars for these and other Penutian languages,[21] the most important of which was Kroeber's grammar of Yokuts, which appeared in 1907. Classification, up to this point, had been founded largely on lexical or vague grammatical resemblances and phonological similarities among languages. In Kroeber's work, however, we find the beginning of comparison, as the Indo-Europeanists use the term. Linguists from that time forth tended to examine their material for sound correspondences and put forth hypothetical reconstructions when possible.

Such an examination led Kroeber and Dixon to propose three new stocks in 1913. One of these they called Penutian. The name was coined from the words pen (similar to *two* in Wintun, Maidu, and Yokuts) and uti (similar to *two* in Miwok and Costanoan) in order to avoid the confusion which had resulted from deriving family names from those of member languages, and also because they believed that "Penian" and "Utian" represented a genetic subdivision within the family.

Kroeber and Dixon did not publish their full evidence until 1919, when they justified their proposals with sound correspondences as well as lexical and grammatical similarities. For Proto-Penutian they reconstructed three series of stops: voiceless, glottalized, and voiced; three fricatives: s, c, and x; m, n, l, r, and five vowels, but they made no effort to connect these reconstructed "sounds" with individual correspondences. They also discussed the basic Penutian stem pattern CVCV(C) and hinted at the possible grammatical structure of the proto-language.

3.2. This classification has caused and is still causing a controversy among scholars; not all of them considered it as certain as Dixon and Kroeber. Frachtenberg wrote that "... [their] presentation of Penutian and Hokan are exceedingly inadequate, both methodologically and in regards to subject matter. The conclusions arrived at by these two students are based upon such fragmentary material and presented so scantily that, while the Penutian and Hokan relationships may be probable, they are by no means a certainty...."[22]

More recently Shafer has likewise been highly critical of Dixon and Kroeber.[23] He also doubts the validity of the Penian-Utian subdivision. Nevertheless, he apparently accepts California Penutian as a stock and seeks to salvage the valid comparisons from Dixon and Kroeber's work. On the basis of these, he establishes correspondences among the Penutian languages for the guttural series and reconstructs the

shenams from Bear river to the Cósumnes. . . . The Meidoos are a joyful, merry and dance-loving race. This language is largely made up of vocalic elements. . . ." (Gatschet, 1877, p. 159.)

[21] Gatschet's Sketch of Chumeto (Southern Sierra Miwok) had already appeared in 1883. Dixon's Outlines of Wintun Grammer was published in 1909, followed by a Maidu sketch in 1911. Articles in which Barrett and Kroeber established definite boundaries for the Miwok dialect areas were printed in 1908, and Kroeber published vocabularies and grammatical notes on Costanoan in 1910.

[22] Frachtenberg, 1918, p. 176. Oddly enough, Frachtenberg continued, in the very same article, "The absence of conclusive evidence concerning Penutian and Hokan is the more unfortunate, as there exist strong reasons to believe that the Takelman, Kusan, Siuslawan, Yakonan, Kalapuyan, and (perhaps) Chinookan languages spoken in Oregon may be proven to be Penutian sister-tongues." (Ibid., p. 177.)

[23] ". . .they presented their evidence . . . and their comparisons indicating that they assumed the interchange of any stop, affricate, or sibilant, or of any liquid, nasal, dental, fricative or affricate, all in a very mixed up manner." (Shafer, 1947, p. 205).

Proto-Penutian guttural phonemes. In 1952 he examines the list of suffixes in the Dixon-Kroeber article, retaining only those which are most likely to represent Proto-Penutian, and speculates at considerable length on the etymologies of certain numerals.[24]

Such controversy points out the need for modern descriptive work in the individual Penutian languages. Two such descriptions have appeared to date: Stanley S. Newman's Yokuts language of California (1944), and L. S. Freeland's grammar of Sierra Miwok (1951). In both of these there is dialect comparison as well as straightforward description. In addition the Survey of California Indian Languages, Department of Linguistics, University of California, Berkeley, is presently sponsoring intensive field work on a number of Penutian languages, viz. Maidu (William Shipley), Wintu (Harvey Pitkin), Lake and Plains Miwok (Catherine A. Callaghan), and Southern Sierra Miwok (Sylvia M. Broadbent). The consensus of opinion among these four field workers is that California Penutian does indeed constitute a linguistic stock.

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WASHO AND KAROK: AN APPROACH TO COMPARATIVE HOKAN

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1. Introduction
2. Phonemes
3. Morphophonemics
4. Word list
5. Index to previous comparisons
6. Sound correspondences
7. Discussion of correspondences
8. Bibliography

1. The recently issued description of Karok by William Bright (1957) constitutes the fullest published treatment in existence for any Hokan language. This paper is a report on the results of a comparison of Bright's materials with my own comparably full unpublished data on Washo in an attempt to determine the progress that could be made towards the establishment of a comparative grammar of Hokan by the utilization of two such copious and well analyzed sources.[1] No implication is of course intended that these two languages might derive from a unitary source subsequent to the Hokan parent language itself—the choice of languages is determined merely by the available data. The present paper will have the additional effect of making available a portion of my Washo data—a portion which, although small, is guaranteed to be ancient in origin insofar as my comparisons are correct and which should therefore be of considerable assistance in the further unravelling of Hokan relationships. Because of this, examples are given of Washo forms which include many of the compared morphemes.

The paper includes, in addition to the list of Washo-Karok comparisons, information about the phonemes of the two languages and rules for the transition from the morphophonemic forms in which citations are given to the phonemic forms found in isolation. Comparisons to other languages are given where these have not previously been made or where better recordings are now available, and for the purpose of showing greater probability of some Washo-Karok comparisons. An index to published papers on comparative Hokan will assist in the evaluation of the extent to which I have relied upon or independently agreed with previous research, and may be of aid in further studies. An attempt is made at a system of grading the probability of sound correspondences, which may be of some general interest. Finally, a number of the correspondences found are discussed with respect to conditioning factors, synchronic distributional facts, and synchronic alternations.

The results of this comparison would seem to bode well for future advances. Besides a number of new two-way comparisons, it has been possible to find several comparisons between words in at least three branches of the family, no two of which had previously been compared (e.g., COTTONWOOD, HERE AND THERE, IMPERSONAL POSSESSIVE, ROLL). Particularly striking is the high proportion of compared morphemes which are of basic importance in the morphology of the two languages.

2. The phonemes of Washo, excluding junctures and intonation contours, are as

[1] My field work on Washo has been supported by the Survey of California Indian Languages, Department of Linguistics, University of California, Berkeley. Grateful acknowledgment is due to Mary R. Haas for helpful suggestions in the preparation of this paper and for making available to me unpublished materials on certain Hokan languages, including the manuscript of Bright's grammar before publication. William Bright has kindly commented on certain comparisons and answered my questions concerning Karok.

follows: consonants /p t k ʔ b d g ṗ ṫ ḳ s š h m n ŋ M N Ŋ w l y W L Y/, vowels /i ɨ u e o a/, length /ˑ/, stress /ˊ/ (weak stress unmarked). A case can be made for setting up the affricates /ṫs, ds, ts/ as unitary phonemes. A Washo nuclear syllable consists of a consonant followed by a vowel, with one of the degrees of stress. Length may follow any vowel. Syllable finally, the following consonants may occur: /p t k ʔ s š h m n ŋ w l y/. A few clusters of two consonants occur syllable initially or finally.

The phonemes of Karok, other than junctural, emphatic, and pausal, are the following: consonantal /p t č k ʔ f θ s š x h v r y m n/, vocalic /i iˑ u uˑ eˑ oˑ a aˑ/, accentual /ˊ ˆ/ and no mark (G110). For the distribution of Karok phonemes, see G160-198.

3. Karok forms and Washo forms other than examples in the word list are cited in morphophonemically basic forms.

A Washo morpheme-final voiced or glottalized stop is found on the phonemic level only when a vowel follows; elsewhere (i.e., when syllable-final) it is replaced by the corresponding voiceless stop. This rule applies to the following items in the list: with -b, BLOW, CRY, HEAD, NAVEL, NOSE, STRAIGHT; with -d, ACROSS, OVER, THROUGH A TUBE, TONGUE; with -g, BACK, CLOSE, DIG, FINGER, HIT, HITHER, IN-LAW (*child's spouse's parent*), KILL, LOOK, WOOD; with -ḳ, DRY. A citation with morpheme-final voiceless stop indicates that the form in question has not occurred before a vowel (BROTHER-IN-LAW, MAGPIE, DUCK).

Washo stems ending in a cluster of two consonants, where the first consonant is not ʔ, show this cluster on the phonemic level only when followed by a vowel; elsewhere the vowel /ɨ/ is found between the two consonants; see ARM, BACK, KILL, LICK, NIGHT, OVER, ROLL.

Washo morphemes ending in -ʔy and unstressed morphemes ending in -ʔm or -ʔw show this sequence on the phonemic level only in prevocalic position; elsewhere the two consonants are found in metathesized order, for example /digóyʔ/ *my father*. This rule applies to morphemes under FATHER and THROW.

Washo morphemes ending in other consonant clusters whose first member is ʔ and stressed morphemes ending in -ʔm or -ʔw also have this phonemic sequence only before a vowel; elsewhere a vowel which is identical in quality with the preceding vowel occurs between the two consonants. Forms in the list under CRY, NAVEL, and WOOD show this.

The Washo morphophonemes ° and ᵘ affect the quality of certain contiguous vowels. The morphophoneme ᵛ lengthens following vowels in certain environments, as well as changing their quality in the same manner as °. The Washo morphophoneme A is represented phonemically by /a/ and /e/, the conditioning factor being the quality of either the following vowel or the following stressed vowel, depending on the dialect.

The Karok morphophonemes ṽ and r̃ are represented by /m/ and /n/ respectively before consonants and by /v/ and /r/ respectively before vowels and juncture. ṽ is found in items under APART, EAT, GRIND, HEAR, INTO, SLEEP, THREE, and r̃ is found under CRY, FLOW, GO TO, SIT SINGULAR, SUCK. Both v and ṽ change to /m/, and both r and r̃ change to /n/ in certain other morphologically defined environments (G342).

Karok consonantal morphophonemes, except for ʔ h v r y and morphophonemes written with capital letters, are geminated in certain environments (G192, G333, G391). Therefore Karok morphophonemic N, occurring in ANCIENT, is everywhere represented by /n/.

The Karok morphophoneme R is equivalent to r except in its effect on accent position (G381.2). This occurs in CHILD and NIGHT.

Karok final a i u of verb themes, preceded by a single consonant (except h),

are lost in certain environments. Karok A is represented always by /a/. This is found under BREAD, PERSON, PITCH (G354).

Karok 0 is represented by zero after a vowel, whereas after a consonant it is represented by a short vowel whose quality is determined by the preceding vowel (G362). This occurs in OVER.

Karok stems which lack an initial consonant in their basic form have allomorphs with initial /ʔ/ when preceded by juncture (G311). After a pausal juncture, Karok forms beginning with unaccented V̆CC have optional alternants without the initial vowel (G392).

4. Each set of comparisons in the list is provided with a general gloss for purposes of reference. The sources for forms from additional Hokan languages are as follows:

Chimariko, unpublished files of Edward Sapir, or Dixon, 1910, where indicated.

Shasta, field notes of Shirley Silver, Survey of California Indian Languages.

Yana, Yahi (Southern Yana), unpublished Yana Dictionary by Edward Sapir and Morris Swadesh.

Antoniaño Salinan, field notes of William H. Jacobsen, Jr., Survey of California Indian Languages.

Yuma, Halpern, 1946–1947, volume and page indicated.

Diegueño, field notes of Alfred S. Hayes, Survey of California Indian Languages.

Chontal of Oaxaca (Tequistlateco), Waterhouse and Morrison, 1950.

The Yuma and Chontal forms are written phonemically; the Diegueño, Salinan, and Shasta forms are in a tentative phonemicization; and the Chimariko forms are written phonetically. The Shasta stress patterns, especially, are subject to revision. The Yana Dictionary uses an orthography modified from that found in Sapir's other publications; it is essentially phonemic. Forms are quoted from the above sources without change.

The following abbreviations are used: a., active verb theme; adj., adjective; adv., adverb; an., animate; Chim., Chimariko; Chon., Chontal of Oaxaca (Tequistlateco); Dieg., Diegueño; du., dual; i., intransitive verb theme; impv., imperative; indic., indicative; intrans., intransitive; K., Karok; neg., negative; p., personal verb theme; perh., perhaps; pers., personal noun; pl., plural; pos., positive; pron., pronoun; s., static verb theme; Sal. Ant., Antoniaño Salinan; sg., singular; Shas., Shasta; t., transitive verb theme; tp., transpersonal verb theme; W., Washo.

Numbers after the K. forms refer to the entries in Bright's lexicon; when preceded by G, they refer to the sections of his grammar. The terms prepound and postpound refer respectively to the initial and the final elements of a compound. I reproduce Bright's term 'submorphemic element' (G710) without finding myself in agreement that all of these are not morphemes; *xip *fly*, for example, is clearly a morpheme; see FLY. Suffixes of K. fall into several classes depending upon the accent patterns they condition when added to stems; these classes are not indicated herein and to this extent the morphophonemic representation of certain morphemes is incomplete. The symbol / separates dialectal variants in Washo and Yana. The symbol ∼ is used between the allomorphs of morphemes. A double hyphen (=) symbolizes a K. syntactic affix (G270). The asterisk marks submorphemic elements in K., verb themes in Yuma, and hypothetical forms elsewhere. See G282 for conventions of the use of the hyphen in K. forms. A hyphen before a W. stem indicates either that it is inalienably possessed or that it is a non-independent verb stem, requiring an instrumental prefix. W. vowel-initial stems never occur without an overt prefix.

ACROSS. W. -áhad *position, motion, or dimension across (a river, road, gulley, hole, room, etc.)* : K. -ka·ra p.i. *to cross a river* 849, and -kara *horizontally toward the center of a body of water*, often with implication of continuation of motion across the body of water

G753.4. Cf. also K. -kaθ *hence across a body of water* (implies complete crossing) G753.5. W. examples: sáhadi *he's wading across*, tugáhadi *he's looking across*, hóhadi *wind is blowing across*.

ANCIENT. W. -legi *recent past tense*, referring to the same day : K. {-anik} -hanik ~ -aNik *ancient tense*, designating a time more remote than that indicated by the past or anterior morpheme G822.3.

AND. W. ʔida *and, and then* : K. taʔítam adv. *so, and, and so* 1272.1. Analyzed by Bright as consisting of tah- ~ ta- adv. *already, by now, now*, marker of perfective action 1272 and ʔítam adv. *earlier today* 749. Cf. perh. Sal. Ant. tax *and*.

ANIMATE PLURAL. W. -w suffix added to numerals above two and other quantifiers when they modify words referring to persons, and to independent pronouns to form the plural : K. -ávan suffix added to the numerals (except yíθa *one*), forming adverbs of the determinative type, used when animate beings are counted G621.3. Bright suggests that the K. suffix may be historically related to ʔávan *husband* and ʔávansa *man* (cf. HUSBAND). One might compare also K. -vah suffix forming adverbs with distributive meaning G621.18. The W. suffix is perhaps historically derived from two different morphemes. W. examples: hélmiw *three (persons)*, há·ʔwaw *four (persons)*, ṫé·kew *many (persons)*, míw *you pl.* Cf. Yana -wi pural of some nouns, especially but not exclusively those referring to people.

APART. W. -ṫá·ṫim *apart, in two* : K. -ravĕ *in two* G753.14. The W. form is doubtless reduplicated from a stem *-á·ṫim. W. examples: yaŋṫá·ṫimi *they're running apart*, gakLiṫá·ṫim *chase them apart !*, dawbayuṫá·ṫim *place where a river splits in two*.

ARM. W. álŋ *arm, wing* : K. átra·x *arm* 189. The K. form seems to contain *at, a submorphemic element meaning *body part* 176. Cf. K. kitáxrih *wing* 891. Cf. Shas. ʔá·čar *arm*, Yana galu *arm*.

BACK. W. ášg *back* : K. vásih *back (of the body or, e.g., of a house)* 1528. Cf. Yana maki *back, backbone*, Yuma šalʸmák *back* 12.209, ʔašlʸmák *my back* 12.29, 151.

BIRD. W. sí·su : K. ačvi·v 15.

BLOOD. W. ášaŋ *blood; to bleed* : K. ʔá·x *blood*; (as a postpound) *red* 215. Cf. also W. -ášuŋ, -ásaŋ *red*. Cf. Shas. ʔáxta *blood*, Yuma *-i·xʷéṭ *blood* 12.210, *ʔaxʷá·ṭ *to be bloody* 13.22, *ʔaxʷéṭ *to be red* 13.22, Dieg. axwát *blood*, perh. Ton. ʔo·n *blood* 75.

BLOW. W. sAbᵉ- *to blow (with the mouth, with a bellows or pump)* : K. *fum submorphemic element, *to blow* 364, occurring in: fumpuh p.t. *to blow (with one's mouth)* 365, fumta·psuru p.i. *to blow in a certain manner (in magical procedure)* 366, fumyih tp.t. *to curse, wish bad luck to* 367. W. examples: gesebétebi *he's blowing it up (balloon, tire)*, gasabáwkawi *he's blowing it up tight*.

BONE. W. í·biʔ : K. ʔípih 655.

BREAD. W. wá·laš *bread; to make bread* : K. sárA *bread* 1212.

BREAST. W. šú· *chest, breast* : K. ʔú·čič *teat, (woman's) breast* 1474. The K. word may contain a diminutive suffix -ič G621.9. Cf. Chim. huʔsíʔ *breast* (final ʔ queried), Shas. ʔíčwat *chest*, Sal. Ant. ṭéšoʔ *my chest* (prob. also *breast*).

BROTHER. W. -béyu *younger brother, male cousin whose parent is younger than ego's, younger male cousin*: K. típah pers. *brother, male cousin* 1386.

BROTHER-IN-LAW. W. -walá·dut ~ -wlá·dut *wife's brother* : K. ʔê·ra *man's brother-in-law, male cousin-in-law, nephew-in-law, or aunt's husband* 338.

BURN. W. ŋ- *to burn; by heat or fire* : K. *im submorphemic element meaning *by heat or fire* 562, in, e.g., imčak s.i. *to burn oneself, get burnt* 570, imniš p.t. *to cook* 584. The W. prefix usually occurs with preceding wA-, referring to a brush or forest fire. W. examples: gaŋáṫsimhayi *he is scorching something in boiling, smoking (bacon)*, weŋíʔši *forest fire is burning along*. Cf. Shas. ʔímmá *fire*, Yana maa- occurring in, e.g., maa-wa- *to put over fire*, maa-ri..ʔa *to roast in a pit*,

cover fire with ashes, maasi- *to get cooked or roasted, ripen*, and perh. Ton. nawa- *to burn, to be on fire* 224.

CHILD. W. -ŋá?miŋ *child (in the sense of "offspring")*; *to give birth* : K. -?áRamah *child (in the sense of "offspring")* 129. Cf. also the W. words ŋáwŋaŋ *child*, -ŋá·m *son*, and -ŋámu? *daughter*, and the K. verb ivraṽ p.i. *to give birth to more than one* 796. Cf. perh. Yana mumari- *to give birth*, Dieg. il^{y}má·m *child*.

CLOSE. W. -í·ɬsig *to close, obstruct* : K. -čak *closing up*, verbal derivative suffix G752.1. W. examples: gatoy?bé·ɬsigi *he's strangling him*, lambí·ɬsik *door*.

COME. W. (-)í·bi? *to have come* : K. ?ípak p.i. *(sg.) to come back, arrive (here) again, to return* 642 and ?i·p p.i. *to return* (?), occurring only in ?i·pkúrih p.i. *to dive* and ?i·pmu p.i. *(sg.) to arrive (there) again, go back, return* 637. Cf. also K. {ip-} Iterative, in formations such as ip-na· *to come back*, ?íp-aho· *to return* G731. The W. stem occurs with and without instrumental prefixes; examples: Mú·bi?i *he has come running*, ší·bi?i *they have come flying*, ɬé·bi?i *(a snake) has come crawling*.

COMPLETELY. W. -šému *very, completely, thoroughly*; *real, genuine*, suffix on nouns and verbs : K. -fip *completely* G754.5. W. example: wayásaŋšémuyi *(weather) is very hot*.

COTTONWOOD. W. ɬáša? *cottonwood tree* : K. ?asápi·p *black cottonwood tree, Populus trichocarpa* 150. The K. word apparently contains an allomorph -i·p of the postpound -?i·p *tree, bush* 638, G613. Cf. Yuma ?ax?á· *cottonwood* 12.212, 13.30.

CRY. W. í?b *to cry* : K. ?ívuř tp.t. *to cry for, mourn for* 799. Cf. perh. Yana mi- *to weep*.

CUT. W. -á·ƙim *to cut through, sever, cut off* : K. ikvit p.t. *to cut* 533. W. examples: ga?lá·ƙimi *he's biting it through (string, rope, stem), biting it off*, gayá·ƙimi *he's cutting it (e.g., string, wire, log, limb, bread, meat)*, gawgá·ƙimi *he's cutting it (with ax, knife—by striking)*. Cf. Chim. -kut- *to cut* Dixon, 364, 374, Yana -ƙau- *to sever, cut out, cut off, burst through*, Yuma *a·k^{y}éṭ *to cut* 13.162.

DEER. W. memdé·wi *deer* : K. pú·fič *deer, venison* 1174. The K. word may contain a diminutive suffix -ič 621.9.

DIG. W. í·deg *to dig up, dig out (e.g., post, tree, potatoes, roots)* : K. ?írip p.i. *to dig* 683.

DOWN. W. -íti? ~ -íti- *down, downwards* : K. -iš(rih) *down from the height of a man or less* G753.3. W. examples: tugíti?i *he's looking down*, píti?i *it's falling*. Cf. Yana -ri(ku) *down, downhill, on the ground*, -ru- *downward, down from above, moving down*.

DRY. W. (-)íhuƙ *to be dry, dry* : K. iváxrah a.i. *to be dry, to dry up* 791. Cf. also K. suváxrah p.t. *to dry* 1262, ixrah s.t. *to thirst for*, occurring only in the phrase ?íšaha (or ?á·s) + ixrah *to be thirsty* 806, axraha *dead tree* 229. The W. stem occurs with and without instrumental prefixes.

DUCK. W. dílek *duck* : K. itka·ra *mallard duck* 752.

EARTH. W. ŋáwa / ŋówa *earth, ground* : K. *am submorphemic element meaning *earth* 85, occurring in ámta·p *dust, ashes*; (as postpound) *gray* 89, amtu·p *clay* 91, ?ávax *red mud* 208. Cf. Chim. ám·a *earth, land*, mátɬsχɪBa *ashes* (phonetics not certain), mátŗɪpa *ashes, dirt*, mát'sɪq'ol *dust*, máDjɪqˣɔl *muddy*, Yuma ?amáṭ *land* 12.26, ?ampóṭ *dust* 12.209, 212, Dieg. amát *earth*.

EAT. W. émlu *food*; *to eat* (intrans.) : K. ?aṽ p.t. *to eat* 201. Cf. Chim. nám·a *you eat !*, hamɛw *food*, Sal. Ant. lám *to eat*, Yuma *amá *to eat* 13.29.

FACE. W. Má·š : K. ?á·v adv. 202. Cf. perh. Chim. hís·uma.

FAT. W. í·dim *fat, lard, grease*; *to be fat* : K. ?íšri·v adj. *fat (of persons)* 725.

FATHER. W. -gó?y : K. ?ákah 50. Cf. Sal. Ant. ?ék, Yuma n^{y}akó *father* 12.212, ?an^{y}kó *my father* 12.148.

FINGER. W. -íɬsig *to stretch, stretch out*, contained in tulíɬsig *finger* : K. tí·k *hand, finger* 1375. Cf. also W. bíɬsik *pounding stone*.

FINISH. W. -máma? *to finish ...-ing* : K.

-mara *to finish ...-ing* G754.11. The W. form may historically be reduplicated from a stem *-áma?; cf. perh. gáma? *to eat up*. W. example: léme?máma?i *I finished drinking*. Cf. Yuma *a·ví·r *to finish* 13.29, 100 (example on 13. 160).

FLESH. W. í·š *skin, fur, eggshell, nutshell, mollusk shell, feathers,* (with háŋa *mouth*) *lips* : K. ?í·š *meat, flesh, body* 690. Cf. K. ?í·θka *feather* 767. Cf. perh. Shas. ?ís *Indian, person*, Yana hisi *man*, Yahi hihsi *man, husband, husband's brother*.

FLINT. W. paṫsá·ga? *flint, i.e. obsidian* : K. sá·k *flint, i.e. obsidian*; *arrowhead*; *bullet* 1196. Cf. perh. Chim. q'ágo, k'áku *arrowpoint*.

FLOW. W. bAyᵘ- *to flow* : K. vuř a.i. *to flow* (*not necessarily in a channel*) 1575. Cf. Yana ba- *to spill, flow* (*liquid, grain, leaves, etc.*). See APART for a W. example.

FLY. W. š- (pl.) *to fly* : K. -xip- in ikxip p.i. (*sg.*) *to fly* 549, iθxip p.i. (*du.*) *to fly*; (*lovers*) *to elope* 781, ?íxip- p.i. (*pl.*) *to fly, to move through the air* 804. W. examples: ší?ši *they are flying along*, šíliwe?i *they are flying upwards*. Cf. perh. Ton. yǫxa- *to fly* 552. See also COME.

FUTURE. W. -áša?- *near future tense* : K. {=aviš} =aviš ~ =e·š ~ =he·š *future tense* G822.1. Cf. Chim. -xan *future* Dixon 331, Yuma -xa *future* (verbal suffix) 13.158, Dieg. -xa *future*.

GALL BLADDER. W. íšew : K. xú·s 1639. Cf. perh. Chim. húsɩ, huɔɩ? *liver*.

GATHER. W. -á·gu? *to gather, pick up things from the ground* (*e.g., rocks, pine nuts, fruit*) : K. pâ·ku(hi) p.i. *to pick or gather acorns* 1045.

GO. W. íye? ~ íye- (*sg. person*) *to go, walk* : K. iyâ·ramu p.i. (*du.*) *to go* (*away*), *to leave, to go on to* 818. Cf. K. -mu ~ -vu *thither, to, toward* G753.10. Cf. perh. K. ivyih- p.i. (*du.-pl.*) *to go, come, arrive* (*there*) 800. Cf. Yana hii- *to go, move*, Yuma *ayá· ~ ayé *to go, go along, depart* 13.28, 152, *ayém (*ayé-m) *to go away* 13.28, perh. Ton. ya?a- *several move along* 442.

GO TO. W. -il *to go to fetch something, go to do something and come back again* : K. -ař *to go in order to* G754.2. W. examples: gamá?gil *go get wood !*, gepṫ?liyil *go fishing !*.

GRAND-RELATIVE. W. -gú?u *mother's mother* : K. kú·t ~ kû·t pers. *male grandrelative through a woman*; *i.e. mother's father, mother's uncle, daughter's son, or niece's son* 942. Cf. K. kí·t ~ kî·t pers. *female grandrelative through a woman*; *i.e. mother's mother, mother's aunt, daughter's daughter, or niece's daughter* 890.

GRAY. W. -ápu(?) *gray, white*, occurring in ṫsápu(?) *ashes* : K. ámta·p *dust, ashes*; (as postpound) *gray* 89. Cf. Yuma ?ampóṭ *dust* 12.209, 212.

GRIND. W. í·ge? *to grind* : K. ikravř p.t. *to grind* (*used esp. of acorns and wild oats*) 481.

HAIR. W. -ímel *body hair, beard* : K. imya·t *fur, body hair* 619. Cf. Chim. hím·ɩ *hair*, q̓ˣóm·ɩ *elk-hide*, Yuma i·mís *fur* 12.208, ya·vu·mé *beard* 12.208, Dieg. lemí· *beard*.

HAND. W. á·du *hand* : K. átru·p *palm of the hand* 190. Cf. W. dulᵛ-, tul-, du- *with the hand, pertaining to the hand*. The K. form may contain *at, a submorphemic element meaning *body part* 176. See also FINGER, NAIL.

HEAD. W. íheb : K. axvâ·h 242.

HEAR. W. dámal *to hear* : K. θitiv tp.t. *to hear* 1452. Cf. perh. K. tí·v *ear* 1394. Cf. Yuma *a?áv *to hear* 13.29.

HEART. W. émle *heart* : K. iθva·y adv. *breast, chest, heart* 775. Cf. Yuma i·wá· *heart* 12.208.

HERE AND THERE. W. -gaṗil *here and there* : K. -várayva *here and there, in various places — within an enclosure* G753.34. The W. -g- is probably historically segmentable. W. example: ?íye?gaṗili *he's walking here and there*. Cf. Yana -bil- *moving about, here and there*.

HIDE. W. ášdim *to hide* : K. ?íšunva tp.t. *to bury, to hide* 732. Cf. K. ?íčunva p.i. *to hide oneself* 399, čunva- p.i. *to sneak* 318. These K. forms may contain the suffix {-va} Plural action G751.

HIT. W. ?ug- ~ -ug- ~ -wg- *to strike or swing at or stir with a long object, strike or*

swing at with the hand and arm, kick : K. ʔa·k tp.t. *to hit (with an implement, as a stick)* 49. See the W. example under CUT.

HITHER. W. -ug ~ -wg *hither, in this direction* : K. -uk (~ -u·k) *hither* G754.17. Cf. Yana -ki- *hither*, Yuma -k *towards here, towards self or speaker* (verb thematic suffix) 13.28.

HORN. W. mésu? / mésu *antler, horn* : K. vê·šura *horn (as of deer)* 1543. Cf. Chim. hówes, hówɨs *horn*.

HOUSE. W. áŋal *house; to build a house* : K. ʔi·v- *house; nest (of insects or rodents)*. Occurs only in composition, both as prepound and postpound 789. Cf. Chim. áwa, ǎwa *house*, Yana wa- *to sit, stay*, wawi, -wa *house*, Sal. Ant. ṭá·m *house*, ṭé·ma *my house*, Yuma ʔavá *house* 12.26, 209, 13.27, *avá *to sit, be sitting, dwell, be situated* 13.107, 151, Dieg. wá· *house*.

HUSBAND. W. bumé·liʔ *husband* : K. ʔávan *husband* 205. W. bu- is a dual prefix; cf. also buʔáŋaliʔ *son-in-law*, containing the stem given under HOUSE.

I. W. lᵉ- ~ di- *first person*, possessor of nouns, subject of verbs : K. ná· pron. *I* 994, nú· pron. *we* 1020, nani- ~ nini- *my*, nanu- ~ nunu- *our*, possessive prefixes on nouns G410, ni- (pos. indic.) ~ ná- (neg. indic.), kán꞉ (impv.) *I - him/them*, nu꞉ (pos. indic.) ~ kín- (neg. indic.), nú- (impv.) *we - him/them, I/we - thee*, subject-object prefixes on verbs G520. The W. prefix occurs also on the pronominal stem -í· ~ -i- : lé· *I*, léši *we (du.)*, léw *we (pl.)*.

IMPERATIVE. W. gᵉ- ~ gA- second person imperative prefix : K. specifically imperative prefixes for first and third person sg. subjects: kán꞉ *I - him/them*, kám- *he - him/them* G520. The K. imperative prefix ki·(k)꞉ *ye - him/them* might also be compared, but other prefixes involving specifically pl. subject or object also have initial k-. For W. examples see APART, GO TO. Cf. Yuma k- *imperative* 13.148, Dieg. k- *imperative*.

IMPERSONAL POSSESSIVE. W. M- ~ gum- prefix on nouns, *characterized by or characteristic of preceding noun* : K. kuma- impersonal possessive prefix, used with and without an antecedent noun G430. Cf. Yuma kʷ- ~ kʷanʸ- indefinite third person possessive prefix 12.209.

IN-LAW. W. dámaw *sister's husband* : K. ná·m *spouse's relative, in-law*. The diminutive is ná·miš. 999. Gifford (1922, p. 32) records a form namix *child's parent-in-law, sibling's parent-in-law, child-in-law's sibling*. Although this seems to be the same form as the diminutive recorded by Bright, the meaning given would suggest a comparison rather with W. -ámig *child's spouse's parent*. Kroeber, quoted by Gifford, recorded namic *spouse's sibling*.

INTO. W. -ǽtum- *into a location out of sight or difficult of access, into a hole* (requires following -uweʔ *thither, in the other direction*) : K. -raṽ *in, into* G753.14, -rámnih (~ -raʿmnih-) *in or into a container* G753.13. W. examples: tugǽtumuweʔi *he's looking into a hole, into the water*, ƙuyǽtumuweʔi *he's swimming into a hole, cave*. Cf. Yana -mari- *in a hole, container*.

INTO MOUTH. W. -á·gal *into or in the mouth, down the throat* : K. -kara *into one's mouth* G753.4. Cf. perh. Ton. kala *mouth* 362.

KILL. W. -átg ~ -ǽtig *to kill* : K. iykara tp.t. *to beat*; (*a person*) *to kill*; *to catch (fish)* 823.

LEG. W. sᵉ- *pertaining to the leg* : K. ápsi·h *leg* 115. Cf. K. *ap, a submorphemic element meaning *body part* 101.

LICK. W. álŋ *to lick* : K. vírax p.t. *to lick* 1552. Cf. K. párax p.t. *to lick (acorn soup) off of cooking stones* 1065.

LOCATIVE. W. -a *in, on, at* : K. -ak (~ -k ~ -kan) Locative, *in, on, at* G621.1. Cf. Yuma -k locative (*at, from*) 12.210.

LOOK. W. tug- *to look; with the eyes, pertaining to the eyes* : K. it- p.i. *to look* 747. For W. examples see ACROSS, DOWN, INTO, UPHILL.

LOUSE. W. ɬsí·bel : K. ači·č 7. The K. form may contain the suffix {-ič} Diminutive G621.9. Cf. Yana ʒi(na).

LUNGS. W. ṕá·ṕiš : K. ʔuθpiváxrah 1506.

MAGPIE. W. ɬá·ɬat *magpie* : K. čítat *magpie, Pica pica var. hudsonia* 306.

MOTHER. W. -lá? / -lá·? : K. tá·t 1333. Cf. Yuma antáy 12.212.

MOTHER'S SISTER. W. -šáša? : K. θúxaθ pers. The diminutive is čúxač. 1471.

MOUTH. W. háŋa *mouth* : K. apma·n *mouth*; *beak* (*of a bird*) 112. The K. form may contain *ap, a submorphemic element meaning *body part* 101.

NAIL. W. ípi? *blanket*, contained in tulípi? *fingernail, toenail* : K. axpih *nail* (*of finger or toe*) 227. A K. form ipxi *nail* is cited in Dixon and Kroeber, 1919, p. 106. Cf. perh Yuma ta·pí·ṭ *blanket* 12.31, *tapéṭ *to cover* 13.28.

NAVEL. W. í?b *navel* : K. ?árup *navel, navel cord* 142. Cf. Chim. hɨnaBʊ *navel*, Shas. ?é·raw *navel*, Dieg. miɬipó· *navel*.

NECK. W. í·bu *back of neck* : K. vú·p *neck* 1571. Cf. Dieg. ipúk *back of neck*, perh. Shas. ?íkuk *neck*.

NIGHT. W. lélm *night*; (with wA-) *to be night* : K. ikxáRam ~ ikxáram adv. *night* 538. Cf. K. ikxúrara adv. *evening* 553.

NOSE. W. šúyeb : K. yúfiv 1685. I am assuming a metathesis in K. from a form like *fuyiv. Cf. Chim. hóχʊ, Yuma i·xú· 12.208, Dieg. xó·.

NOT KNOW. W. ášaš *to not know* : K. sê·y p.i. *to not know, not know how, be ignorant* 1223.

OLD. W. -é·Lu in yé·Luyi *he's old*, mé·Lu *old man* : K. ?aráka s *old man* 128. Cf. Yuma kʷara?ák *old man* < verb theme *kʷara?ák *to be, become an old man* 12.204, Dieg. kwirák *old man*.

OLDER BROTHER. W. -?á·ɬu *older brother, male cousin whose parent is older than ego's, older male cousin* : K. ?árih *older brother, older male cousin*. The diminutive is ?a·níhič. 137. Cf. Shas. kátiwa? *brother*, Yuma ancén *older brother* 12.212.

ON. W. -áŋa? *on or onto something above the ground* (verbal stem) : K. -?ávah- *above* 203. Cf. K. ?ávahkam adv. *on top*: '*above-side*' 203.1, G621.11. One might compare also, or instead, W. íwi? *upon* (a noun stem). Cf. perh. Yana -?iiwa-gil- *over a person*.

OVER. W. -áwd *up and over something* (*e.g., hedge, fence, mountain*), *over the edge of something* (*e.g., a table*) : K. -0vr- in: -0vruk *down over the edge of something* G753.38, -0vra· *over*, as in ikfúk-uvra· *to climb over* (*a hilltop*) G753.35, -0vraθ *into a sweathouse*; *over* (used by some informants only in the latter sense) G753.36. W. example: šu?máwdi *he's throwing it over*.

PAST. W. -a? *narrative or immediate past tense* : K. -at ~ -hat *past tense* G534. Cf. Yuma -t *assertive* (verbal suffix) 13.156.

PERSON. W. ɬánu *person* : K. ?árA ~ ?árah *person* 127, ?ára·ra pers. *man* (*i.e., human being*), *person*; *Indian*; (with possessives) *relative* 132.

PITCH. W. šála? *pitch* : K. axváhA *pitch* (*as of the pine*) 241. Cf. K. ?apunáxvuh *gum* (*of plants*); *glue* 121. Cf. perh. Yana čal?a *pitch*.

PULL. W. yᵘ- *to pull, pull or lead with a rope, pull or manipulate a rope or rope-like object* : K. iθyuru p.t. *to drag, pull, haul* 787, išyu·n p.t. *to pull*, as in išyú·nkiv *to pull out* 745. Cf. Yana hi?yu(n)- / hi?yu(d)- *to pull along, lead*. See STRAIGHT for a W. example.

ROLL. W. -íwl *to roll* : K. -ívruh in ikrívruh p.i. (*sg.*) *to roll* (*as a ball*) 496, ?inívruh- p.i. (*du.-pl.*) *to roll* (*as balls*) 633. Cf. Yana mil- *to twist, roll*.

RUN. W. Mᵘ- (*sg.*) *to run* : K. -vip in ikvip ~ ikvirip- p.i. (*sg.*) *to run*; *used of salmon as well as of creatures with legs* 532, iθvip ~ iθvírip- p.i. (*du.*) *to run* 776. See the W. example under COME. Cf. perh. Yana ba- *one person runs, hastens*.

SHOOT. W. bAyᵉ- *to shoot* (intrans.) : K. pásip p.i. *to shoot* 1072. The same K. stem may be found in sásip- a.i. (*pl.*) *to extend, be in a line* 1218; therefore I am comparing only the initial consonant of the K. form. See STRAIGHT for a W. example which may be exactly parallel to this K. formation.

SICK. W. -áha *to feel pain, be sick* : K. axváhkan *sick* 244.

SINEW. W. í·dew *sinew, root*, (with ášaŋ

blood) *blood vessel* : K. ʔípam *sinew* 643. Cf. K. ʔé·pu·m *root* 337, xípu·n *connective tissue of sinew* 1624. Cf. Shas. ʔímmi· *sinew*.

SISTER. W. -ʔí·sa *older sister, female cousin whose parent is older than ego's, older female cousin* : K. čí·š *younger sister, younger female cousin* 303. The K. initial consonant may be by analogy of čá·s *younger brother, younger male cousin* 279. Cf. perh. Shas. ʔá·či *sister*.

SIT PLURAL. W. ʔl^{u}- (*pl.*) *to sit* : K. ʔi·na p.i. (*du. an.*) *to live, stay, sit, be* 628.

SIT SINGULAR. W. -í·gel in gé·gel (*sg.*) *to sit*; ƙul^{e}- (*sg.*) *to be located, sit, lie* : K. ikriv (∼ -ikri· ∼ -ikri·y-) p.i. (*sg. an.*) *to live, stay, sit, be* 493. Cf. K. ʔí·kra a.i. (*house*) *to stand, be* 478, and kû·ř- p.i. *to sit, to slide* (*on one's buttocks*), as in kû·riš(rih) *to sit down* 928. I feel uncertain as to which of the W. morphemes to compare. They may both ultimately be related. Cf. Yana -ku?naa-, Yahi -ku?la- *to stay, dwell*.

SLEEP. W. élšim *to sleep* : K. ʔásiṽ p.i. *to sleep* 157. Cf. Yuma *ašmá *to sleep* 13.26.

SNOW. W. d^{e}- *to snow*, or ṫé·be? *snow* (*on ground*) : K. tá·h *snow* (*on the ground*) 1273.

SPLIT. W. -ísu *to split, be split* : K. ʔíxax p.t. *to split, shred* 802.

STAND. W. yáli? (*sg. person*) *to stand* : K. ihyárih p.i. (*an.*) *to stand* 433.2. The K. form is considered by Bright to be a derivative of ʔí·hya a.i. (*long object*) *to stand* (433; G754.14); this seems semantically irregular and may not be historically valid.

STEP. W. bAw- *to step, take a step* : K. piv- p.i. *to step, put one's foot*, as in pí·vkaθ *to step across* (*a stream*), pí·š(rih) *to step down* 1161. Cf. Yana bu- *to move along in short steps* (*?*), *to dance*, and bu- *by kicking, stepping*.

STRAIGHT. W. -í·šib *to be straight, correct, right* : K. ʔíšip a.i. *to extend, be in a line* 697, or -iši·p *best, most, farthest* G614.4. Cf. K. sásip- a.i. (pl.) *to extend, be in a line* 1218. W. examples: beyé·šibi *he's shooting straight*, šu?mí·šibi *he's throwing straight*, geyú·šibi *he's pulling it straight* (*rope, canvas*).

SUCK. W. ála? *to suck, nurse* : K. viř p.t. *to suck* (*on*) 1551. Cf. perh. K. ixvírip p.t. *to swallow* (*by accident*) 815, paxvirírxviri p.t. *to suck on* (*something*) *held in one's mouth*, reduplicated from a stem paxviř- (G740) 1103.

SWIM. W. ƙuy^{e}- *to swim* : K. -puh- in: ikpuh p.i. (*sg.*) *to swim*; used with directionals, as in ikpú·h-ro·vu *to swim upriver* 475, iθpuh- p.i. (*du.*) *to swim*, as in iθpú·hrina (*du.*) *to swim across* 768. See INTO for a W. example. Cf. Yana puu- *to swim, move into or out of water*.

TAIL. W. ápil : K. ápvu·y 125. Cf. K. ʔípun *tail meat of salmon* 673, tavúyvuy p.i. (*dog*) *to wag its tail*, reduplicated from a stem tavuy- (G740) 1344. Cf. Shas. ʔihíwa, Yana ṗulsu.

THITHER. W. -uwe? ∼ -we? *thither, in the other direction* : K. -mu ∼ -vu *thither, to, toward* G753.10. See FLY, INTO, UPHILL for W. examples. Cf. Yuma -m *towards there, away from self or speaker* (verb thematic suffix) 13.28, Yana -ma- *there, from there*.

THREE. W. hélme- ∼ hélmi- *three* K.: ʔáraṽ p.i. *to weave with three strands* (*in basketry*) 135. Cf. Yuma *xamók *to be three, three* 13.21, Dieg. hamúk *three*.

THROUGH A TUBE. W. -ámad *through a tubular space* : K. -vara *in through a tubular space* G753.32.

THROW. W. šuʔm- *to throw* (intrans.) : K. paθ p.t. *to throw* 1088. I am assuming a metathesis of the consonants in the K. form. See OVER, STRAIGHT for W. examples. Cf. Chim. hís·umat *to throw*.

TONGUE. W. Má·dud : K. ápri·h 114. Cf. Shas. ʔêhéna, Yuma -i·pál^{y} 12.208, perh. Ton. netxal 263.

TWO. W. hésge- ∼ hésgi(l)- : K. ʔáxak adv. 217. Cf. Shas. xúkk^{w}a, Yuma *xavík *to be two, two* 13.21.

UP. W. -íli? ∼ -íli- *up, upwards* : K. -rih (∼ -ri·h-) *up*, as in iktát-rih *to prop up* G754.14. See the W. example under FLY.

UPHILL. W. -á·ṫi *upwards on a hillside, upwards in a slanting direction* : K. -ra· *hither from downhill, hither from downriver* G753.12, and -ura· *up to a considerable height; hence uphillward* G753.31. W. ex-

ample: tugá·tiwe?i *he's looking upwards, upwards along a hillside.*

VULVA. W. í·bis : K. vi·θ 1561.

WADE. W. sᵊ- *to wade* : K. faθ- p.i. *to wade*, as in fáθaθuna *to wade around* 351. See the W. example under ACROSS.

WATER. W. á·ša? *urine; to urinate* : K. ?á·s adv. *water; juice* 145. Cf. Shas. ?ácca *water*, Yuma ?axá *water* 12.204, 207, Dieg. axá· *water*, Sal. Ant. ţšá? *water*.

WHO. W. gúdiŋa / gúdi?ŋa *who?* (occurring usually with the interrogative suffix -hé·š) : K. ?akáray ~ ?aká·y (~ ?akárA ~ kárA) pron. *who?, anyone* 52.

WITH. W. -haka *with, in the company of* : K. xáka·n adv. *together (with one other), both*. Used as a postposition in the sense *with (one other)*. 1586. Bright connects this with the K. word compared under TWO (G833.7).

WOOD. W. má?g *wood, stick* : K. ?áhup *stick, wood* 44. See also the W. derivative under GO TO. Cf. Chon. ?e·k *wood* Waterhouse and Morrison 36.

WORM. W. máţuš : K. vákay 1518.

YOU. W. m- ~ ?um- *second person*, possessor of nouns, subject of verbs : K. ?í·m pron. *you (sg.)* 563, mi- *your (sg.)*, possessive prefix on nouns G410. The W. prefix occurs also on the pronominal stem -í· ~ -í-; see the example given under ANIMATE PLURAL. Cf. Yuma m- second person possessive prefix 12.209, second person subjective pronominal prefix 13.148.

5. This index to the principal papers on comparative Hokan will yield information of several types. Some of the references are meant to suggest that the Washo and Karok words compared may be related to other words not previously compared to either, so that these together would form a more widely attested family of cognates (e.g., COTTONWOOD, CUT, STRAIGHT). Others will serve to add a Washo or Karok form to a set of cognates that is already well represented (e.g., FLINT, HORN, INTO). On the other hand, some references will show previously published juxtapositions equivalent to mine (WITH). Yet others will show that the two words compared are part of a large and accepted set of cognates (HOUSE, TAIL). A reference to a set of comparisons does not, of course, imply agreement that all the forms in the set should be compared. The entires under the headings are arranged in chronological order and are indexed by author, date, page, and item number, if there is one. Note that the comparisons to Washo on pp. 108–112 of Dixon and Kroeber, 1919, were made by Sapir.

ACROSS. Cf. perh. Dixon and Kroeber 1919, 107.

ANCIENT. Dixon and Kroeber 1919, 112.

ANIMATE PLURAL. Sapir 1917, 22, No. 183, and 23, No. 183a; Dixon and Kroeber 1919, 107 and 111.

ARM. Dixon 1919, 337; Kroeber 1915, 282, No. 28; Sapir 1917, 5, No. 23, and 7, No. 49; Dixon and Kroeber 1919, 106; Sapir 1920, 283, No. 18; Sapir 1921, 68, No. 18; Sapir 1925, 407, No. 13, and 408, No. 21.

BACK. Sapir 1917, 10, No. 74; Sapir 1921, 69, No. 121; Sapir 1925, 405, No. 2; Spier 1946, 79; Greenberg and Swadesh 1953, 218; Bright 1956, 47.

BLOOD. Dixon 1910, 337; Dixon and Kroeber 1913, 653; Kroeber 1915, 282, No. 16; Sapir 1917, 16, No. 137; Sapir 1925, 405, No. 3; Kroeber 1943, 27; Spier 1946, 82; Greenberg and Swadesh 1953, 218; Bright 1956, 45 and 46.

BONE. It is surprising to note that these two words, which correspond so nicely, seem to be the only Hokan words for BONE containing a labial stop. Sapir has reconstructed the Proto-Hokan form as *ihyaka (1917, 33) and *ihakya (1925, 405, No. 4) on the basis of forms in other languages. Perhaps this reconstruction should have instead -kʷ- or -xʷ- in place of one of the consonants or consonant clusters in order to subsume these two forms; this would also suggest a comparison with Natchez ?ekʷel(e-) and Proto-Muskogean *xʷuni,

*-x^{w}k^{w}uni (Haas 1956, 64). For the other Hokan words for *bone* see Kroeber 1915, 282, No. 30; Sapir 1917, 8, No. 57; Sapir 1925, 405, No. 4; Kroeber 1943, 27; Spier 1946, 81; Greenberg and Swadesh 1953, 218; Bright 1956, 44, 45, 46, 47.

BREAD. Bright 1954, 65.

BREAST. Dixon and Kroeber 1919, 108; Sapir 1920, 283, No. 20; Sapir 1921, 68, No. 20; Sapir 1925, 406, No. 5; Olmsted 1957, 138, No. 45.

BROTHER. Dixon and Kroeber 1919, 105 and 108; Gifford 1922, 231, No. 16; Greenberg and Swadesh 1953, 218; Olmsted 1956, 75, No. 10.

BROTHER-IN-LAW. Dixon and Kroeber 1919, 106 and 110; Gifford 1922, 232, No. 27.

BURN. Sapir 1920, 286, No. 69; Sapir 1921, 68, No. 69; Sapir 1925, 414, No. 59; Bright 1956, 46.

CHILD. Kroeber 1915, 282, No. 29; Greenberg and Swadesh 1953, 218.

COME. Dixon and Kroeber 1919, 109; Bright 1956, 45.

COTTONWOOD. Kroeber 1943, 29; Spier 1946, 122.

CRY. Dixon 1910, 338; Sapir 1917, 11, No. 82; Sapir 1925, 414, No. 64.

CUT. Sapir 1917, 18, No. 149; Bright 1956, 45, 46; Olmsted 1957, 137, No. 35.

DOWN. Sapir 1917, 19, No. 161; Dixon and Kroeber 1919, 111.

EARTH. Kroeber 1915, 282, No. 2; Dixon and Kroeber 1919, 110; Sapir 1925, 409, No. 34; Kroeber 1943, 28; Spier 1946, 132, 133; Greenberg and Swadesh 1953, 218; Bright 1956, 45, 46.

EAT. Dixon 1910, 338; Sapir 1917, 11, No. 86; Dixon and Kroeber 1919, 107 and 109; Sapir 1920, 287, No. 78; Sapir 1921, 69, No. 78; Greenberg and Swadesh 1953, 218.

FACE. Sapir 1925, 406, No. 10.

FATHER. Sapir 1917, 7, No. 48a; Dixon and Kroeber 1919, 105 and 109; Gifford 1922, 230, No. 2; Spier 1946, 37; Greenberg and Swadesh 1953, 219, s.v. *man*. The comparison of words for *father*, *man*, and *old*, suggested in the last reference, seems unjustified.

FLESH. Dixon 1910, 338; Sapir 1917, 9, No. 60; Sapir 1920, 283, No. 12. I am assuming a semantic shift in the W. form similar to that which has occurred in Eng. "flesh".

FLINT. Dixon 1910, 338; Sapir 1917, 8, No. 53; Greenberg and Swadesh 1953, 219, s.v. *stone*.

FUTURE. Dixon and Kroeber 1919, 111.

GALL BLADDER. Dixon 1910, 337; Sapir 1917, 9, No. 58; Dixon and Kroeber 1919, 109.

GO. Dixon and Kroeber 1919, 109; Sapir 1920, 294; Sapir 1921, 69, No. 122; Sapir 1925, 414, No. 69.

GRAND-RELATIVE. Sapir 1917, 3, No. 3a; Dixon and Kroeber 1919, 106 and 109; Gifford 1922, 231, No. 13.

GRAY. Kroeber 1915, 282, Nos. 9 and 14; Sapir 1920, 286, No. 64; Greenberg and Swadesh 1953, 218; Bright 1956, 45, 46.

GRIND. Bright 1954, 65.

HAIR. Sapir 1920, 284, No. 24; Sapir 1925, 412, No. 52.

HAND. Dixon and Kroeber 1919, 108; Sapir 1925, 405, No. 1; Greenberg and Swadesh 1953, 217. Some of the forms in the references cited under ARM may belong here.

HEAD. Dixon 1910, 337; Bright 1954, 64.

HEAR. Sapir suggests that the W. form may be denominative from the Hokan word for *ear;* however W. ṕísew *ear* more clearly belongs with the other Hokan words (the initial consonant constitutes a problem), although this would not exclude the other hypothesis. See Dixon 1910, 337; Kroeber 1915, 282, No. 27; Sapir 1917, 10, No. 76; Dixon and Kroeber 1919, 106 and 109; Sapir 1921, 70, No. 17; Sapir 1925, 406, No. 7; Kroeber 1943, 27; Greenberg and Swadesh 1953, 218; Bright 1956, 46, 47; Olmsted 1957, 138, No. 47.

HEART. Kroeber 1915, 282, No. 17; Dixon and Kroeber 1919, 109; Kroeber 1943, 27; Spier 1946, 71, 79; Greenberg and Swadesh 1953, 218.

HITHER. Sapir 1917, 20, No. 166; Dixon

and Kroeber 1919, 107 and 111; Sapir 1920, 286, No. 70; Sapir 1921, 68, No. 70; Sapir 1925, 414, No. 63.

HORN. Sapir 1917, 16, No. 139; Sapir 1920, 287, fn. 4; Greenberg and Swadesh 1953, 219.

HOUSE. Dixon and Kroeber 1913, 653; Kroeber 1915, 282, No. 18; Sapir 1917, 16, No. 138; Dixon and Kroeber 1919, 106 and 108; Sapir 1920, 284, No. 41; Sapir 1925, 412, No. 50 and 415, No. 78; Kroeber 1943, 28; Greenberg and Swadesh 1953, 219.

I. Sapir 1917, 25, No. 189; Dixon and Kroeber 1919, 110; Sapir 1920, 282, No. 1; Greenberg and Swadesh 1953, 217; Bright 1954, 64; Bright 1956, 46.

IMPERATIVE. Dixon and Kroeber 1919, 110.

INTO. Sapir 1917, 21, No. 172.

INTO MOUTH. Greenberg and Swadesh 1953, 219; Bright 1956, 47. Some of the forms in the references under MOUTH belong here.

KILL. Bright 1956, 45, 46.

LOCATIVE. Dixon and Kroeber 1919, 111; Greenberg and Swadesh 1953, 217.

LOOK. Cf. perh. Dixon and Kroeber 1913, 651; Kroeber 1915, 282, No. 26; Sapir 1925, 406, No. 9; Kroeber 1943, 27; Greenberg and Swadesh 1953, 218; Bright 1956, 45.

LOUSE. Sapir 1917, 6, No. 35; perh. Sapir 1925, 408, No. 28.

MOTHER. Sapir 1917, 12, No. 96; Dixon and Kroeber 1919, 105 and 109; Sapir 1920, 283, No. 15; Gifford 1922, 230, No. 4 and No. 5; Sapir 1925, 413, No. 55; Greenberg and Swadesh 1953, 219; Bright 1956, 45.

MOTHER'S SISTER. Dixon and Kroeber 1919, 106 and 108; Sapir 1920, 283, No. 7; Gifford 1922, 232, No. 22.

MOUTH. Dixon 1910, 338; Dixon and Kroeber 1919, 106 and 109; Sapir 1920, 284, No. 25; Sapir 1925, 407, No. 16; Bright 1956, 45; Olmsted 1956, 76, No. 14.

NAIL. Dixon and Kroeber 1919, 106.

NAVEL. Dixon and Kroeber 1919, 106; Sapir 1925, 407, No. 17; Bright 1954, 65.

NECK. Dixon 1910, 338; Dixon and Kroeber 1919, 106 and 109; Sapir 1920, 284, No. 27; Sapir 1925, 407, No. 18; Spier 1946, 79; Olmsted 1956, 75, No. 5.

NIGHT. Dixon and Kroeber 1919, 110.

NOSE. Kroeber 1915, 282, No. 15; Sapir 1920, 284, No. 28; Sapir 1925, 407, No. 19; Kroeber 1943, 27; Greenberg and Swadesh 1953, 219.

OLD. Kroeber 1915, 282, No. 11; Kroeber 1943, 27; Greenberg and Swadesh 1953, 219. The words for *big* should probably be kept separate.

OLDER BROTHER. Sapir 1917, 14, No. 123; Dixon and Kroeber 1919, 105; Sapir 1921, 70, No. 1; Gifford 1922, 231, No. 15; Bright 1954, 65, s. vv. *brother* and *child*.

ON. Sapir 1917, 27; Dixon and Kroeber 1919, 111.

PAST. Dixon and Kroeber 1919, 111.

PERSON. Bright 1954, 65.

RUN. Dixon and Kroeber 1919, 110.

SINEW. Sapir 1917, 4, No. 12; Sapir 1925, 412, No. 53; Greenberg and Swadesh 1953, 219; Olmsted 1956, 76, No. 13.

SISTER. Dixon and Kroeber 1919, 105 and 109; Gifford 1922, 231, No. 18; Sapir 1925, 413, No. 56.

SIT SINGULAR. Sapir 1917, 18, No. 150; Dixon and Kroeber 1919, 107 and 109; Sapir 1921, 69, No. 124.

SLEEP. Dixon and Kroeber 1913, 651; Kroeber 1915, 282, No. 6; Sapir 1917, 14, No. 115; Sapir 1920, 287, No. 97; Sapir 1921, 69, No. 97; Sapir 1925, 416, No. 79 (the W. words for *to lie* do not belong here); Kroeber 1943, 29; Greenberg and Swadesh 1953, 219; Bright 1956, 44, 45,

SNOW. Dixon and Kroeber 1919, 106.

STRAIGHT. Olmsted, 1956, 75, No. 7.

SWIM. Sapir 1917, 13, No. 109; Sapir 1920, 286, fn. 5; Olmsted 1956, 75, No. 3.

TAIL. Sapir 1917, 13, No. 114; Dixon and Kroeber 1919, 106; Bright 1956, 45, 46, 47; Olmsted 1956, 76, No. 11.

THITHER. Sapir 1925, 415, No. 70.

THREE. Dixon 1910, 338; Kroeber 1915, 282, No. 23; Dixon and Kroeber 1919, 107 and 109; Sapir 1920, 286, No. 67; Sapir 1925, 418, No. 102 and 419; Kroeber 1943, 26; Greenberg and Swadesh 1953, 217; Bright 1956, 46; Olmsted 1957, 138, No. 44.

THROW. Dixon and Kroeber 1919, 108; Bright 1956, 44, 47.

TONGUE. Dixon 1910, 338; Dixon and Kroeber 1913, 651, 653; Kroeber 1915, 282, No. 5; Sapir 1917, 5, No. 16; Kroeber 1943, 27; Greenberg and Swadesh 1953, 220; Bright 1954, 65; Bright 1956, 45, 46, 47; Olmsted 1956, 77, No. 18.

TWO. Dixon 1910, 338; Dixon and Kroeber 1913, 653; Kroeber 1915, 282, No. 22; Sapir 1917, 15, No. 133; Dixon and Kroeber 1919, 107 and 109; Sapir 1920, 286, No. 66; Sapir 1921, 68, No. 66; Sapir 1925, 418, No. 101 and 419; Kroeber 1943, 26; Greenberg and Swadesh 1953, 217; Bright 1956, 45, 46, 47.

VULVA. Dixon and Kroeber 1919, 106.

WATER. Dixon 1910, 338; Dixon and Kroeber 1913, 651, 653; Kroeber 1915, 282, No. 1; Sapir 1917, 8, No. 55; Sapir 1920, 285, No. 54; Sapir 1921, 68, No. 54; Kroeber 1943, 28; Greenberg and Swadesh 1953, 220; Haas 1954; Bright 1956, 45, 46.

WHO. Dixon and Kroeber 1919, 111.

WITH. Dixon and Kroeber 1919, 111.

WOOD. Kroeber 1915, 282, No. 20; Sapir 1920, 285, No. 55.

YOU. Dixon 1910, 338; Sapir 1917, 25, No. 190; Dixon and Kroeber 1919, 110; Sapir 1920, 282, No. 4; Greenberg and Swadesh 1953, 217; Bright 1956, 44, 45.

6. The method of tabulating and grading possible sound correspondences used in this section represents an attempt at showing more about their relative probabilities than would be shown by merely indicating the number of examples found for each. Each entry gives a Washo morphophoneme and the Karok morphophoneme to which it seems to correspond, then a figure showing the number of sets in which the correspondence occurs, followed, after a comma, by a figure giving the total of the grades assigned to the correspondence in these sets. Then are given, in alphabetical order, the headings for the sets and the grade given to the correspondence in each set.

The grades have been arrived at in the following manner. Each potentially cognate set has been assigned a grade of 1, 2, or 3 (not reproduced here) on the basis of degree of probability of cognateness as judged by such factors as whether the meanings are close or distinctive, whether the sound relationships are plausible and are paralleled in other sets, whether all the sounds can be put into one-to-one relationship with one another, whether there are apparent cognates in other related languages, and whether the resemblances might be due to other factors, such as onomatopoeia. Then each sound correspondence in a set was given a grade the same as or less than, but not greater than, the grade of the set. This involved a consideration of these and further factors, such as the ease of deciding which sound should go with which sound in the other form, whether an affix might be present, whether morpheme alternants in the parent language might be involved, or whether analogy rather than regular sound change might have operated. In some cases a single sound in one form has been compared to more than one sound in the other form, with a consequent lowering of the grades; and in some cases where one form is longer than the other an affix is assumed to be present and the sounds therein are not tabulated at all. Thus the ratio of the two figures given for each correspondence will vary between 1:1 and 1:3, and these ratios should be taken into account along with the absolute totals in evaluating the individual correspondences. For example, I would consider a correspondence with a score of 2, 6 as much better attested than one with a score of 3, 3, even though the latter has more instances of occurrence. This system of scoring is not intended as a mechanical means of avoiding subjectivity in the evalu-

ation of the correspondences, but rather as a way of giving the reader a better idea of the opinion arrived at by a consideration of as many relevant factors as possible.

The correspondences have been put into five successive groups below—namely vowels, sonorants, fricatives, stops, and stress patterns. The assignment of certain correspondences to one rather than another of these groups may be arbitrary. Within each of these groups the sets have been arranged in order from those with highest total scores to those lowest total scores, and within each sub-group having the same total score, from those with the largest ratio of total score to number of occurrences to those with the smallest such ratio. The stress patterns have not been graded, as too many disturbing factors are felt to be present. Position of stress has been counted in relationship to the final syllables of forms, regardless of whether or not additional suffixal material is thought to be present in one of two compared forms. Length is tabulated as part of vowel units.

a : a (A) 23, 45, ACROSS 2, AND 2, BACK 3, BREAD 1, CHILD 1, COTTONWOOD 4, EARTH 1, FINISH 2, FUTURE 1, LOCATIVE 2, MAGPIE 1, MOTHER'S SISTER 1, ON 4, PAST 2, PERSON 2, PITCH 1, SICK 2, STAND 3, TAIL 3, THROUGH A TUBE 3, WITH 2, WOOD 1, WORM 1.

- : a (A) 22, 32, ANCIENT 1, ANIMATE PLURAL 1, BIRD 1, CHILD 1, DUCK 1, FATHER 1, FINISH 1, go 1, HERE AND THERE 1, HIDE 1, HORN 2, HUSBAND 1, IMPERSONAL POSSESSIVE 1, INTO MOUTH 3, KILL 2, LICK 2, LOUSE 1, NIGHT 1, PITCH 2, THREE 1, THROUGH A TUBE 3, TWO 3.

i : i 14, 27, AND 2, BONE 3, CRY 2, DEER 1, DOWN 2, DUCK 1, GO 2, HAIR 2, NAIL 3, ROLL 2, SPLIT 2, STAND 3, STRAIGHT 1, UP 1.

a : - 16, 18, ARM 1, BLOOD 1, EARTH 1, FINISH 1, FLINT 1, HEAR 1, HERE AND THERE 1, HOUSE 1, IN-LAW 1, INTO 1, KILL 1, NOT KNOW 1, SISTER 2, SUCK 1, THROUGH A TUBE 2, WATER 1.

e : a 10, 18, BROTHER 2, EAT 3, GRIND 2, HAIR 2, HUSBAND 1, NIGHT 1, SINEW 1, SLEEP 3, THREE 1, TWO 2.

u : u 7, 15, GATHER 2, HITHER 3, HORN 3, IMPERSONAL POSSESSIVE 2, NOSE 2, SWIM 1, THITHER 2.

i· : i 8, 14, BONE 3, COME 1, DIG 2, FAT 2, GRIND 2, SINEW 1, SIT SINGULAR 2, STRAIGHT 1.

a· : a· 5, 9, FACE 1, FLINT 2, GATHER 2, UPHILL 1, WATER 3.

a : a· 6, 9, ACROSS 1, BLOOD 3, GRAY 1, IN-LAW 1, MOTHER 2, WITH 1.

e : i 6, 9, ANCIENT 1, COMPLETELY 1, DIG 2, HEART 1, NOSE 2, SIT 2.

i : a 8, 9, CHILD 1, COME 1, GO TO 1, HEAD 1, KILL 1, NAIL 1, NAVEL 2, WHO 1.

- : i 6, 8, BACK 3, BROTHER 1, BURN 1, FLY 1, HEAR 1, LOOK 1.

a· : - 3, 7, APART 3, HAND 1, INTO MOUTH 3.

i· : i· 5, 7, BIRD 1, COME 1, FLESH 2, LOUSE 1, SISTER 2.

u : a (A) 7, 7, DRY 1, INTO 1, PERSON 1, SPLIT 1, THROW 1, WHO 1, WORM 1.

u : - 7, 7, BIRD 1, BROTHER 1, COMPLETELY 1, EAT 1, GRAND-RELATIVE 1, LOOK 1, SIT SINGULAR 1.

u : u· 4, 6, GRAND-RELATIVE 1, HAND 2, NECK 2, SIT 1.

a· : a 3, 5, BREAD 1, BROTHER-IN-LAW 1, OLDER BROTHER 3.

e : a· 3, 5, DUCK 1, GO 2, HEART 2.

i· : - 3, 5, CLOSE 1, NECK 2, VULVA 2.

a : i 4, 5, HEAR 1, HIDE 1, LICK 2, SUCK 1.

- : u 4, 5, CRY 1, NAVEL 2, ROLL 1, WOOD 1.

i : a 4, 5, APART 2, CLOSE 1, HERE AND THERE 1, LUNGS 1.

i : i 2, 4, CUT 1, SLEEP 3.

i : - 4, 4, ANCIENT 1, FINGER 1, GALL BLADDER 1, UP 1.

e : e· 1, 3, HORN 3.

o : a 1, 3, FATHER 3.

i : i· 2, 3, FINGER 1, VULVA 2.

a· : i 3, 3, CUT 1, LUNGS 1, MAGPIE 1.

i : - 1, 2, CUT 2.

- : a· 1, 2, ARM 2.

u· : u· 1, 2, BREAST 2.

A : u 2, 2, BLOW 1, FLOW 1.

e : - 2, 2, HEAD 1, THITHER 1.
ᵉ : a 2, 2, IMPERATIVE 1, WADE 1.
ᵉ : - 2, 2, BLOW 1, SWIM 1.
a : iˑ 1, 1, HOUSE 1.
a : u 1, 1, MOTHER'S SISTER 1.
a : eˑ 1, 1, NOT KNOW 1.
eˑ : aˑ 1, 1, SNOW 1.
eˑ : a 1, 1, OLD 1.
- : iˑ 1, 1, SIT PLURAL 1.
i : iˑ 1, 1, FAT 1.
i : u 1, 1, HIDE 1.
i : uˑ 1, 1, TAIL 1.
u : aˑ 1, 1, OLD 1.
u : i 1, 1, OLDER BROTHER 1.
ew : uˑ 1, 1, GALL BLADDER 1.
eˑ (eˑw) : uˑ 1, 1, DEER 1.
ᵉ : aˑ 1, 1, SNOW 1.
ᵉ : i 1, 1, SIT SINGULAR 1.
ᵉ : iˑ 1, 1, LEG 1.
a : 0 1, 1, OVER 1.
A : i 1, 1, STEP 1.
A : a 1, 1, IMPERATIVE 1.
ᵘ : u 1, 1, PULL 1.
ᵘ : a 1, 1, SIT PLURAL 1.
ᵘ : i 1, 1, RUN 1.
ᵘ : - 1, 1, FLOW 1.

l : r (R) 13, 24, ARM 3, BREAD 1, BROTHER-IN-LAW 1, DUCK 1, HERE AND THERE 1, INTO MOUTH 3, LICK 3, NIGHT 1, ROLL 2, SIT 2, STAND 3, THREE 2, UP 1.

m : v 8, 16, CUT 3, FAT 2, HEART 2, HIDE 1, HORN 3, HUSBAND 1, THROUGH A TUBE 3, WORM 1.

m : ṽ 6, 14, APART 3, EAT 3, HEAR 1, INTO 2, SLEEP 3, THREE 2.

- : v 9, 13, BACK 2, BIRD 1, DRY 1, FUTURE 1, LICK 2, PITCH 1, SICK 1, SUCK 1, TAIL 3.

m : m 7, 12, CHILD 1, FINISH 2, HAIR 2, IMPERSONAL POSSESSIVE 2, IN-LAW 1, NIGHT 1, YOU 3.

l : - 6, 11, EAT 3, HEART 2, HOUSE 1, NIGHT 1, PITCH 1, SLEEP 3.

y : y 4, 9, GO 2, NOSE 2, PULL 2, STAND 3.

ŋ : x 2, 6, ARM 3, LICK 3.

w : v 4, 6, ANIMATE PLURAL 1, OVER 2, ROLL 2, STEP 1.

w : m 3, 5, EARTH 1, SINEW 2, THITHER 2.

l : n (N) 4, 5, ANCIENT 1, HUSBAND 1, I 2, SIT PLURAL 1.

- : y 2, 4, HAIR 2, HEART 2.

ŋ : v 2, 4, HOUSE 2, ON 2.

l : t 2, 4, HAIR 2, MOTHER 2.

ŋ : - 1, 3, BLOOD 3.

ŋ : m 3, 3, BURN 1, EARTH 1, MOUTH 1.

- : n 3, 3, MOUTH 1, SICK 1, WITH 1.

n : r 1, 2, PERSON 2.

y : - 1, 2, FATHER 2.

l : r̃ 2, 2, GO TO 1, SUCK 1.

y : h 2, 2, BROTHER 1, SWIM 1.

m : p 2, 2, COMPLETELY 1, THROW 1.

M : v 2, 2, FACE 1, RUN 1.

M : k..m 1, 1, IMPERSONAL POSSESSIVE 1.

M : p 1, 1, TONGUE 1.

L : r..k 1, 1, OLD 1.

y : r̃ 1, 1, FLOW 1.

l : y 1, 1, TAIL 1.

w : f 1, 1, DEER 1.

w : - 1, 1, BREAD 1.

ŋ : h 1, 1, CHILD 1.

- : ṽ 1, 1, GRIND 1.

- : m, 1, 1, AND 1.

b : m 1, 1, BLOW 1.

š : s 6, 13, BACK 3, BREAD 1, COTTONWOOD 2, NOT KNOW 1, SLEEP 3, WATER 3.

š : x 6, 9, BLOOD 3, FLY 2, GALL BLADDER 1, LUNGS 1, MOTHER'S SISTER 1, PITCH 1.

š : š 4, 8, FLESH 2, FUTURE 2, HIDE 2, STRAIGHT 2.

s : š 2, 5, HORN 3, SISTER 2.

s : x 2, 4, SPLIT 2, TWO 2.

h : x 3, 4, DRY 1, HEAD 1, WITH 2.

s : θ 2, 3, VULVA 2, WADE 1.

š : f 2, 3, COMPLETELY 1, NOSE 2.

- : x 3, 3, NAIL 1, NIGHT 1, SPLIT 1.

š : θ 2, 2, MOTHER'S SISTER 1, THROW 1.

š : y 2, 2, NOT KNOW 1, WORM 1.

s : f 2, 2, BLOW 1, WADE 1.

- : h 2, 2, OLDER BROTHER 1, ROLL 1.

- : s 1, 1, GALL BLADDER 1.

- : š 1, 1, FAT 1.

- : θ 1, 1, HEART 1.

s : s 1, 1, LEG 1.

s : č 1, 1, BIRD 1.

s : - 1, 1, BIRD 1.

š : - 1, 1, FACE 1.
š : č 1, 1, BREAST 1.
h : h 1, 1, SICK 1.

- : ʔ 20, 40, BLOOD 3, BONE 3, BREAST 1, COME 2, CRY 2, DIG 2, EAT 3, FAT 2, FATHER 1, FLESH 2, HIDE 1, HOUSE 1, NAVEL 2, OLD 1, ON 2, SINEW 2, SLEEP 3, SPLIT 2, STRAIGHT 2, WATER 3.

g : k 17, 34, ANCIENT 1, CLOSE 1, FATHER 3, FINGER 1, FLINT 2, GATHER 2, GRAND-RELATIVE 1, GRIND 2, HIT 2, HITHER 3, IMPERATIVE 2, IMPERSONAL POSSESSIVE 2, INTO THE MOUTH 3, KILL 3, SIT 1, TWO 3, WHO 2.

ʔ : h 10, 20, BONE 3, DOWN 2, FATHER 3, GATHER 1, NAIL 3, ON 2, PITCH 1, STAND 3, UP 1, WOOD 1.

d : r 9, 17, ACROSS 2, BROTHER-IN-LAW 1, DIG 2, FAT 2, HAND 2, OVER 2, THROUGH A TUBE 3, TONGUE 1, WHO 2.

b : p 7, 13, BONE 3, BROTHER 2, COME 2, NAVEL 2, SHOOT 1, STEP 1, STRAIGHT 2.

ṫ : r 6, 12, APART 3, INTO 2, KILL 2, OLDER BROTHER 3, PERSON 1, UPHILL 1.

b : v 6, 10, CRY 2, FLOW 1, HEAD 1, NECK 2, NOSE 2, VULVA 2.

ʔ : r (R) 6, 10, CHILD 1, FINISH 2, GO 2, GRIND 1, HORN 2, NAVEL 2.

ʔ : ʔ 4, 7, AND 2, CHILD 1, OLDER BROTHER 3, SIT PLURAL 1.

k̇ : k 3, 6, CUT 3, SIT SINGULAR 1, WITH 2.

- : p 4, 6, FLY 1, GATHER 1, HAND 2, NECK 2.

ʔ : k 6, 6, CRY 1, FUTURE 1, GATHER 1, THITHER 1, THROW 1, WATER 1.

ʔ : t 3, 5, GRAND-RELATIVE 1, MOTHER 2, PAST 2.

g : h 2, 4, BACK 3, WOOD 1.
- : t 2, 4, CUT 3, GRAY 1.
p : p 2, 4, GRAY 2, NAIL 2.
d : n 3, 4, HIDE 1, I 2, IN-LAW 1.
d : t 3, 4, AND 2, DUCK 1, SNOW 1.
h : ʔ 2, 3, THREE 1, TWO 2.
h : k 2, 3, ACROSS 2, SICK 1.
- : k 2, 3, LOCATIVE 2, SICK 1.
ṗ : p 2, 3, LUNGS 1, TAIL 2.
d : p 2, 3, DEER 1, SINEW 2.
t : t 2, 2, LOOK 1, MAGPIE 1.
ṫ : t 2, 2, MAGPIE 1, SNOW 1.
ṫ : ʔ 2, 2, COTTONWOOD 1, PERSON 1.
g : p 2, 2, DIG 1, WOOD 1.
ṗ : v 2, 2, HERE AND THERE 1, LUNGS 1.
ṫs : č 2, 2, CLOSE 1, LOUSE 1.
b : č 1, 1, LOUSE 1.
g : - 1, 1, LOOK 1.
t : r 1, 1, DOWN 1.
k : k 1, 1, DUCK 1.
ʔ : p 1, 1, COTTONWOOD 1.
ʔ : č 1, 1, SISTER 1.
ʔ : k 1, 1, COME 1.
ṫ : č 1, 1, MAGPIE 1.
ṫ : k 1, 1, WORM 1.
ṫs : s 1, 1, FLINT 1.
ṫs : t 1, 1, FINGER 1.
k̇ : p 1, 1, SWIM 1.
k̇ : r 1, 1, DRY 1.
k̇ : h 1, 1, DRY 1.

◿ - : ◿ - 32, BONE, BREAD, BROTHER, COME, COTTONWOOD, DEER, DIG, DRY, FAT, GRAY, HAND, HUSBAND, LUNGS, MAGPIE, MOTHER'S SISTER, NOSE, OLD, OLDER BROTHER, ON, PERSON, PITCH, SICK, SINEW, SLEEP, SPLIT, STAND, STRAIGHT, TAIL, THREE, TONGUE, TWO, WORM.

- : - 21, ANIMATE PLURAL, BLOW, BURN, FLOW, FLY, GO TO, HIT, HITHER, I, IMPERSONAL POSSESSIVE, LOCATIVE, LOOK, PAST, RUN, SHOOT (ʔ), STEP, SWIM, THITHER, THROW, WADE, YOU.

◿ - : - - 17, ACROSS, BIRD, CUT, DOWN, FINISH, FUTURE, GRIND, HAIR, HEAR, HEART, INTO MOUTH, LOUSE, MOUTH, NAIL, SIT SINGULAR, STRAIGHT, THROUGH A TUBE.

◿ - : - 12, APART, CLOSE, COME, COMPLETELY, EARTH, EAT, HOUSE, INTO, SUCK, UP, UPHILL, VULVA.

◿ - : ◿ 10, BLOOD, FINGER, FLINT, GALL BLADDER, GRAND-RELATIVE, IN-LAW, NECK, SISTER, SNOW, WATER.

◿ : ◿ - 10, ARM, BACK, BREAST, CRY, FATHER, LICK, NAVEL, NIGHT, ROLL, WOOD.

◿ : ◿ 3, FACE, FLESH, MOTHER.

- : - - 3, PULL, SIT PLURAL, SIT SINGULAR.

- : ◿ 2, IMPERATIVE, SNOW.

- : ˊ- 2, ANIMATE PLURAL, LEG.
-- : ˊ- 2, AND, WITH.
ˊ- : ˊ-- 2, CHILD, HIDE.
ˊ- : ˆ2, GRAND-RELATIVE, NOT KNOW.
ˊ- : ˆ- 2, BROTHER-IN-LAW, GATHER.
ˊ- : ˆ-- 2, GO, HORN.
ˊ- : --- 2, DUCK, KILL.
ˊ : - 1, OVER.
-- : ˊ-- 1, HERE AND THERE.
-- : -- 1, ANCIENT.
ˊ- : -ˆ 1, HEAD.
ˊ-- : ˊ- 1, WHO.

7. Many instances of the following apparent correspondences may go back more or less directly to ablaut variations in the parent language: a : -, - : a, i : -, - : i, u : -, - : u, i : i, i : a, u : a, aˑ : -. Note for example the instances of non-independent or satellite stems having a W. form -V(·)CVC and a K. form -CVCV: FINISH, HERE AND THERE, INTO MOUTH, THROUGH A TUBE.

Many examples of the following apparent correspondences may be due to the presence of affixes in one or both of the compared forms: - : a, a : -, i : a, - : i, - : u, u : a (A), i : uˑ, u : i, m : v, - : v, - : n, ŋ : h, - : h, - : x, ʔ : č, ʔ : p, ʔ : k, h : ʔ, b : č, ɬs : s. Instances of yet other correspondences in the tabulation may, of course, be due to such a situation.

Many cases of the following apparent correspondences, where the vowels are stem initial, may be due to a shift in stem type: a : i, i : a, aˑ : i, a : iˑ, i , iˑ : -. There are indications that the parent language may have had two large classes of stems, having initial vowels with the quality of i and a respectively. There may have been derivational processes of shifting from one to another type, and subsequent analogical regrouping may have occurred.

The correspondence - : ʔ when stem initial (rather than ʔ : ʔ) may reflect essentially a difference in analysis rather than a sound shift.

The K. sounds s and š are almost in complementary distribution and alternate morphophonemically with one another (see G191, G371, and Bright 1952, p. 55), therefore they may be presumed to have been members of the same phoneme at an earlier stage of the language. Using the symbol S for this phoneme, one would obtain correspondences with the following scores: š : S 10, 21; s : S 3, 6; - : S 2, 2. The fact that W. s and š both correspond to the same K. sounds, S, x, θ, č, - (except only š : y), seems to imply that these two W. phonemes go back to a unitary source. Conditioning factors for a split, however, are not clear.

The following sets seem to give evidence for a W. conditioned sound change *i..a > i..e (pointed out already by Sapir): BROTHER, DUCK, GO, GRIND, HAIR, HEAD, HEART, NIGHT, SINEW, SIT SINGULAR. Further comparisons of W. forms to forms in other languages bear this out, for example the apparent cognates of ɸísew *ear* (see the references under HEAR).

These sets seem to show a W. change *a > e in those environments which condition the representation /e/ of the morphophoneme A: EAT, HUSBAND (?), IMPERATIVE, SLEEP, THREE, TWO.

W. stressed vowels before voiced stops are always long. Morphophonemic alternations are correlated with this situation; for example, the stem íd *to say* has the allomorph íˑd before a vowel and ít elsewhere. The following sets give evidence for historical lengthening of vowels in this environment: BONE, BROTHER-IN-LAW, COME, DIG, FAT, GRIND, HAND, INTO MOUTH, NECK, SINEW, SIT SINGULAR, TONGUE, VULVA.

My comparisons of W. M and L with K. clusters including a voiceless stop is supported by W. alternations between L and kL and between M and kM for some speakers.

A K. change *k > p in the environment contiguous to u may be shown by the comparisons under NECK, WOOD, and possibly SWIM. HAND may also belong here (W. loses final *-k; see LOCATIVE, NECK). A further comparison of the Karok negative

prefix pu= (G845.6) to the negative prefixes of other languages, which have a velar or postvelar consonant, tends to substantiate this. A parallel change for K. of *x > f next to u is shown by NOSE. BLOW may belong here also.

Note the correlation of the correspondences m : v, m : v̄, n : r, and l : n with the K. morphophonemic alternations given in **3.**

The apparent correspondence ŋ : x is probably due to the loss of a nasal in K.; cf. BLOOD. The K. long vowel in ARM and BLOOD may be due to compensatory lengthening. The velar position of the nasal in W. may be due to contiguous *x, now lost.

Note that most instances of the stress pattern ´ : ´- will coincide phonemically with the pattern ´- : ´-, due to the W. morphophonemic rules given in the third and fifth paragraphs of **3.**

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AN ATSUGEWI WORD LIST

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0. Introduction
1. Orthography
2. Vocabulary
3. Tribal names

0. In American Anthropologist 59:841, 1957, D. L. Olmsted says that the Atsugewi language "has never to my knowledge been the subject of a single publication, descriptive or historical," and cites W. Bright's Hokan bibliography (IJAL 21:279, 1955) in support.

With the angels fearing to tread, I step in with an Atsugewi vocabulary. It is culled from word lists, paradigms, texts, and ethnography which I obtained in the week beginning November 2, 1900, at Cassel on Hat Creek, mostly from Charlie Snook. Confidentially, the material stinks, but it may incite my successors and betters to present something as it ought to be. The vocabulary is printed as recorded, except for changes which I indicate.

This was my second experience of field work in California, while I was briefly connected with the California Academy of Sciences in San Francisco. I visited Roland Dixon as he was completing his season's Maidu field work at Mooretown, and then accompanied him to Oroville and Chico, where Alfred Tozzer joined him after an unassisted novice's try at the Northern Miwok language. The three of us entrained for Redding, and from there traveled by horse stage up Pit River, I dropping off at Cassel, they going on to Fall River Mills (Falls City). A week later we regathered there and drove by moonlight half around Mt. Shasta to "Sisson," now Mount Shasta City; whence, a day or so later, we broke up and went our several ways.

Dixon later (JAF 21:159–177, 1908) published Charlie Snook's Creation and Loon Woman myths as he obtained them from him in 1903, somewhat fuller than my versions. Casts of Charlie Snook's face and hand are preserved in plaster in New York at the American Museum. His English was limited but he was a good informant.

1. I often underlined stops to indicate their 'intermediateness.' As this was hedging, I have here omitted the underlining (italicizing) and give *d*, *t*, *d!*, *t!*, as d, t, d! (*sic*), t!.

Glottalization of stops is indicated, as was customary in 1900, by !. It is retained because I also used ', mainly away from stops.

c and tc are for English sh and ch; š, "between s and sh."

w was at first mostly heard and written as bilabial v. Its rounding is probably light, as in Yurok. At the end of my week I concluded there was only one sound.

h is between h and x, viz., lightly fricative.

Vowels I wrote with macron for long, and part of the time with superior breve for short. To allow of stress accent being shown on the vowel, these diacriticals have here been replaced by V· for long, V for short. Long vowels tend to be geminated, and were often so written, instead of with macron, but have also been rewritten here as V·. In final position iii, etc., has usually been rewritten i·i, but it remains uncertain whether this stands for i·'i or for mere extra duration. Forms like i'i are obviously for i'i.

2. djíu 1; hokí· 2; q!i·cqí· 3; hak!á·u 4; h^{a}ra·pagína 5; djira-búdjaki 6; ho·ki-budjaki 7; q!icqi-budjaki 8; hakaú·-wi, -budjaki 9; djü'kci· 10.

á·ude· (á·ud!e·, á·ute·) *person*; q!acví·-uhau *man*; minurí·-dzara *woman*; ye·sqoé·-tsara *old woman*; q!acvi·-dzara *boy*; icmitsí-dzara

girl; i·vinq!-ai(n) *baby, infant*; ná·xha *head*; 'rainikas *hair*; óiyi, úiyi *eye*; iu'ní, iu'dí *nose*; i·tsáu· *teeth*; bilé·iwici *beard*; a·š'mák *ear*; la·pá·u· *arm*; mitsúru *fingernail*; wí·cidi (nearly wí·cini) *leg, thigh*; djudjkí· *foot*; yo·pwá·i·ki *heart*; t!u·k!uru *chest*; o·umíi *belly*; ts!ukit *back*; tipwíri *tail*; hálemut *snot*; k!e·pare *saliva*.

acé·h^{i}la *sky*; na·mícta *cloud*; blú·plaki *lightning*; nuní·duwi *thunder*; wo·t *wind*; tsné·h^{u}u· *sun*; tcupaululunini *moon*; naiyo·djo·áka *star*; yex'tcí· *land, world*; d!á·ihak! *ground, dirt*; eheu *mountain*; nú·yehe *rock*; así· *day*; apé·na *night*.

birikí· *grizzly bear*; wi·kiridz! *black bear*; a·t!pái· *bear*; d!oxq!aa *racoon*; há'ena *skunk*; wéhiyáa *badger*; oreá·cwi· *wild cat*; má·kita·, má·k!ed!a *coyote*; hó·uma *dog, horse*; buc *small gray fox*; kwáu· *silvergray fox*; c^{i}rákeci· *otter*; yetpúriu *mink*; djirí·ihai· *fisher*; nimts!q!í *weasel*; ahwi· *porcupine*; wácwari· *gray squirrel*; he·tuara·q! *ground squirrel*; q!ine·qi, k!iné·ki (*cottontail*) *rabbit*; má·x'k!o· *deer*; wipakú·kue·e· *cow*.

itwí· *eagle*; ohuwá·i *duck*; nariwamáa *fishduck*; (h)ac'wi'wí·w^{i} *widgeon*; d!ínik *teal*; alutcók *mudhen, coot*; vicí·curuk *a diving bird, black and white, loon*; cílum *goose*; la laq! *smaller species of goose*; p'tcus *humming bird*.

aštsóumi *rattlesnake*; holópkai·wa *snake* sp.; cé·q!^{u}tana *lizard*; há·p!úitc *turtle*; axq!á·nidii *frog*; aní *salmon*; le·išá *salmon trout*; bik'í· *sucker*; naxpunóo·i *silk cocoon* [*for rattles*]; tcá·de *river mussel*.

o·hpi *tobacco*; á·tcvi· *pine tree* [prob. yellow pine]; dziri-op *white oak*; máx'hau· *Xerophyllum*; karáde·d-op *red willow*; wí·bi *willow*.

yá·uti *house*; dzmáha *sweat-house*; dumírii, tumídi· *bow*; nápcda·i, q!apcdí· *arrow*; ikne·hé·e· *arrow point*; wíts'da·s *quiver*; póroat *gun*; t!o·h^{u}d!í *basket*; ye·cí·, yac'i· *paper*; tu·me-he· *knife*.

ak *I*; ak-pa *I agent*; aku *my*; mi·, mii, mi·tcu, mi·tce *you*; mi·ku *your*; hoki *we two*; akwini· *us, our*; kutsa *he*; wika- *he, them*; ke, kepik *this*; houme *that*; atcku *his*.

tsílulits *large*; i·wink!e·e *little*; búcai *good*; mo·xtsa *all*; taskou *many*.

me·dé· *no*; haku *far*; ucpi *yesterday*; punika *today*; lukumi *tomorrow*.

pú·mi, pu·má *go*; ídtip *shoot*.

3. (h)atsuké·ihi *Hat Creek Indians*.

a·p'aruké·ii *Dixie Valley Indians*, ap'arí·wa·, *the valley*.

a·k^{u}hí·i, akwí·i *Big Valley Indians*, same speech as Hat Creek [*sic*! They are Achomawi of Bieber.]

di·wídjauwí·i *Falls City Indians*.

bo·umarí·i *Pit River Indians*.

d!i·mauí· *Round Mountain Indians* [N. Yana?]; di·ma·uwi· [Yana] *"Noji" of Mill Creek*.

d!ikuc^{i}wí·, dik!cui *Big Meadows people* [N. E. Maidu].

i·t'uwitš *Wintun*.

picidjumudjí·i [Wintun or more probably Madesi Achomawi of] *Big Bend* [of Pit River].

cactí·tsi *Shasta Indians*.

a·ts^{o}honí·i *Modoc Indians*; á·ts!oh^{a}náa *Modoc country*.

ap^{i}cí·i [Northern] *Paiute*.

taikak!ani-áue·te· *"rocky place people."*

nuye·he·wani-aue·te *"rocks live people,"* the Mill Creek Indians or Kombo, exterminated.

hó·we·á'a, wó·we·iaγa, *white people*.

ATSUGEWI PHONOLOGY

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0. Preface
1. Vowels
2. Semivowels
3. Consonants
4. Stress
5. Two-phoneme sequences
6. Pitch phenomena

0. Atsugewi is a language of northeastern California tentatively[1] assigned to the Palaihnihan branch of the Hokan family. Never more than a few hundred in number, its speakers have dwindled to a mere handful today (cf. **6**). There are two dialects: Atsugewi (Hat Creek) and Apwarugé (Dixie Valley).[2] These dialects are mutually intelligible but show regular phonemic differences. The present paper describes the Hat Creek dialect only, and is based entirely upon the results of my own field work, which began during the summer of 1953 and has included parts of each year since.[3] The last remaining speaker of the Dixie Valley dialect was only discovered during 1956, and my materials from that dialect are not yet sufficient for a thorough-going description.

1.0. The vowels of Atsugewi are /i e a o u ə i· e· a· o· u· ə·/. We consider below (**1.21**, **1.22**) the question of the analysis of, for example, [i·] as /i·/ rather than /ii/, /yi/, /iy/. First we describe the phonemic entities above and attempt to show them all in contrast in similar positions (utterance-final after consonant or semivowel). Minimal pairs, while rare in Atsugewi, nevertheless exist for a few of the vowels listed above; such definitive proof of the phonemic status of every vowel relative to every other would involve a complicated chain of argument beyond the scope of this paper, which purports to be a description, not an exercise in methodology.

1.1. /i/ allophones: [I] before any consonant cluster of which the first member is

[1] Cf. the bibliographies in D. L. Olmsted, Achumawi-Atsugewi non-reciprocal intelligibility, IJAL 20.181–4 (1954), ibid., Palaihnihan and Shasta I: Labial stops, Lg. 32.73–7 (1956), hereafter referred to as PS I, ibid., Palaihnihan and Shasta II: Apical stops, Lg. 33.136–8 (1957), hereafter referred to as PS II. To these should be added Thomas R. Garth, Atsugewi Ethnography, UCAR 14.2 (1953), who quotes a number of Atsugewi forms, and Jeremiah Curtin, ms., (no date), a word list in the Smithsonian Collection. I am indebted to Professor Mary R. Haas for discovering the presence of this word list on a microfilm roll obtained from the Smithsonian for other purposes, and for allowing me to have a photostat made of it. While none of Curtin's material is used here, it will prove a valuable source for other purposes since it appears to be an excellent piece of work. To my knowledge, nothing else has been published on Atsugewi, except for a few forms quoted in de Angulo and Freeland and a few (usually the same ones) scattered for comparative purposes through the other works listed in the bibliography.

I owe thanks to the following institutions for support of my field work on Atsugewi: the Institute of Human Relations, Yale University; the Survey of California Indian Languages; the Institute of Social Sciences, University of California, Berkeley; the Research Committee, University of California, Davis; the Social Science Research Council.

[2] I wish to thank Omer C. Stewart, whose cooperation while doing field work on another project made possible the discovery of an informant who is probably the last speaker of the Dixie Valley dialect.

[3] The Atsugewi described here is principally that of Ike Wilson, about sixty years of age, the youngest speaker of the language. Mr. Wilson, as do the other remaining speakers, uses English much more than Atsugewi nowadays. All of the informants live in family clusters in which their children speak only English (though some understand a bit of 'our language') and their grandchildren and great-grandchildren are monolingual speakers of English in every sense of the word.

not [ʔ], [i] elsewhere. Characteristic[4] of the phoneme: high front tongue position, ordinary duration (vocality rather than semi-vocality).

/e/ allophones: [ɛ] before any consonant cluster whose first member is not [ʔ], [e] elsewhere. Characteristic of the phoneme: mid front tongue position, ordinary duration.

/a/ allophones: [a] and [ɐ], in free variation in all positions. The latter is slightly rounded, the former never. Characteristic of the phoneme: low tongue position, ordinary duration.

/o/ allophones: [ɔ] before any consonant cluster whose first member is not [ʔ], [o] elsewhere. Characteristic of the phoneme: mid back tongue position, ordinary duration.

/u/ allophones: [U] before any consonant cluster whose first member is not [ʔ], [u] elsewhere. Characteristic of the phoneme: high back tongue position, ordinary duration.

/ə/ phone [ə]. Characteristic of the phoneme: central tongue position, ordinary duration.

1.21. The long vowels /i· e· a· o· u· ə·/ have the phones [i· e· a· o· u· ə·] respectively, and have as characteristics the tongue positions of the corresponding short vowels plus long duration instead of ordinary duration. It is a bit unclear, in the light of Bloch's Postulate 46.1 and unfinished ('Further postulates will be necessary to cover the interpretation of the remaining conjugate segment where only one is the same as the corresponding short segment.') Definition 46.2, whether these long vowels are to be analyzed as geminates, and, if not, how they are to be handled. They are NOT conspicuously congruent (see Table I) with dyads of homotypical phones (in this case VV sequences) and can hardly be considered as geminates. Further, they emphatically are not congruent with VC sequences (almost always followed by V), or with CV sequences (almost always preceded by V). Thus even the identification of either the first or second conjugate segment of [V·] with [V] is in doubt. The fact seems to be that the long vowels in Atsugewi are congruent with ('pattern like') the short vowels. Hence, though for reasons of 'economy' (reducing the sheer number of items in the phonemic inventory) they are here regarded as composed of the short vowel plus /·/, a phoneme of length, it turns out that they are best regarded for other purposes (e.g. calculating phonemic distributions) as six entirely different 'phonemic bundles'.

1.22. The long vowels /i·/ and /u·/ are in contrast with /yi/ and /wu/: iskí·janwo *few*, aʔyina *skunk*, kwayi·t *to rain*, nariyi· *trout*, asíyi *day*; wújawí *wide*, u·yehi *gopher*. /u·/ constrasts with /uw/ before vowel: wissu·í *wind*, pokuwítswa *to swell*. /i·/ and /iy/ appear not to be in contrast, but this seems insufficient reason to interpret [i·] as /iy/ in the light of the above examples and in the presence of the other long vowels, which could not be dealt with in this way.

1.3. The preceding discussion is necessitated by the fact that, of all our criteria for phonemic analysis, that of 'economy' is one of the weakest, and that of 'pattern congruity' is one of the vaguest and most difficult to apply rigorously (Bloch: 'pattern congruity, the most elusive but in some ways the most valuable of all criteria', Postulates 44.2). Both criteria need to be related more explicitly to the ultimate purposes of phonemic analysis, and the operations to be performed in determining pattern congruity need further specification.

1.4. Examples follow of both stressed and unstressed vowel phonemes in final position after consonant or semi-vowel (with the exception of /ə·/, which is very rare and turns up only initially and medially in my materials).

/i/ maxjí *fish*, í·wti *salt*; /e/ nipí·maʔé *you see it?* jʔaʔte *buzzard*; /a/ jinaksuwá *little black ant*, pokuwítswa *to swell*; /o/ jiwohó *other*, qəswíwo *man*; /u/ mahkú *deer*, pə́thku *wild plum*; /ə/ werə́km·tə́ *panther*, jextə

[4] Cf. Bernard Bloch, A set of postulates for phonemic analysis, Lg. 24.3–46 (1948), 53.12.

medium brown ant; /i·/ íwí *feather*, i·t?wi· *eagle*; /e·/ ótsəké· *lake*, mikhte· *flint*; /a·/ iwá· *come on*, iqwatəwa· *to push*; /o·/ jine?wó· *sun*, na?t?ájolo· *mountain balm*; /u·/ pijú·š[5] *hummingbird*, wissu· *to blow (wind)*; /ə·/ natawə́·mma *big fish duck*, ə·xkuri *road*.

2.0. The semivowels of Atsugewi are /y w h/. All are characterized by half-length duration (are distinctively shorter than the short vowels). /y/ is a high front off- or on- glide (and between vowels is both), /w/ is a high back rounded off- or on- glide (and between vowels is both), and /h/ is, before vowel, a voiceless or partially voiced approximation of the tongue position and rounding (/u u· o o·/ are rounded, the other vowels, except as stated for [ɐ], are not) of the following vowel, describing a rapid change from the tongue position and rounding of the preceding vowel, if there is one. After vowel before C or finally, /h/ is a voiceless (finally and before voiceless C) or partially voiced approximation of the tongue position and degree of rounding of the preceding vowel. Between consonants or after C in final position it is aspiration. /h/ thus as characteristics semivocality (vocality, half-length duration) and incomplete voicing.

2.1. The semivowels /y/ and /w/ are in contrast with their vocalic counterparts /i/ and /u/: pwe?inínu *he's dead* vs. juwo·míw *it's flowing* shows /Cíu/ and /Cíw/ in contrast. lo?pupía *maidenhair fern*, yatpúriu *mink* and wa?apyú *what?* show /CiV/, /CiV/ and /CyV́/ in contrast in final position, and wié·ja *to sing* shows that the semivowel is not dependent upon the presence of a following stressed vowel, when compared with miti?yé· *to turn*.

2.2. In addition to the dyadic sequences of vowels and semivowels listed in Table I, the following sequences of three or more vowels and/or semivowels occur.

/hóy/ wáqhóy *dull*; /iwá·/ iwá· *come on*; /way/ o·xway *duck*; /i·wí/ i·wíŋkay *little*; /íyi/ asíyi *day*; /awo/, /áywo/ sawoqáywo *dirty*; /awá/ wostawá *to spit*; /uwi/ wunnuwi *cotton-topped tule*; /uwí/ pokuwítswa *to swell*; /íwi/ íwi *skin*; /iyi·/ nariyi· *trout*; /uwa·/ juwa·s?ós *paint*; /əwa·/ jiqwatəwa· *to push*; /awo/ kajkawo *correct*; /uyá·/ tú·suyá· *rub!*; /wié·/ wié·ja *to sing*; /awí/ wújawí *wide*; /ehe·/ pətísehe· *I'm not going?*; /ehí·/ rə́ksehí· *name*; /íwi/ qíwinussa *to freeze*; /úyi/ úyi *eye*; /íwí·/ íwí· *feather*; /íwə/ maxjíwənə?ji *fish eggs*; /ewi/ tewtewinni *salmon flies*; /uwo·/ juwo·míw *it's flowing*; /awá·/ sawá· *give it here*; /áha/ náha *head*; /awa/ jupawalé· *long*; /heyu/ heyurízə *baby*; /e·yih/ je·yih *honey bee*; /aywá/ halúpkaywá *snake*; /áywi/ náywijənó·qa *star*; /ayhó/ tayhóq *dirt*; /ahaw/ sú?kahaw *owl*; /we·yú/ kew·yú?ma *he's playing*; /wayi·/ kwayi·t *to rain*; /wúwo/ jəkwúwo *many*; /wíwo/ qəswíwo *man*; /ehew/ -ehew *mountain (suffix)*; /wawá/ wawáswa *he's holding it*; /wayá/ jotwayá *chipmunk*; /u·yehi·/ u·yehi· *gopher*; /uyuwo/ juyuwop *chokecherry*; /áhuwa/ isqapáhuwa *cold*; /woyóh/ woyóhqa *to vomit*; /úwoho/ asmúwoho *smooth*; /ú·yehe/ nú·yehe *stone*; /iwohó/ jiwohó *other*; /oáywa/ toáywas *oar*; /áywoho/ utstáywoho *near*; /wo·wí·wi/ wo·wí·wi *to fight*; /əháywa/ wehməháywa *grouse*; /hawawú/ hawawúka *in*.

3.0. Atsugewi consonant phonemes are as follows: /p t k q j ? m n ŋ s z š x r l θ/. This list differs from the 'tentative list of Atsugewi phonemes' in PS I in the omission of /wyh/, there incorrectly classified as consonants instead of semivowels, and by the addition of /ŋ/ and /θ/. The latter is very rare, but is not determined and must therefore be included.

3.1. /p t k q/ are stops and are, respectively, bilabial, apico-alveolar, dorso-velar and dorso postvelar. They are always voiceless consonants, lenis in clusters with voiced consonants and intervocalically, fortis elsewhere. Thus previous records of Atsugewi sometimes have the letters b, d, g, usually

[5] I have no example of /ú·/ in absolutely final position.

intervocalically (cf. Garth, deAngulo and Freeland, Curtin). For examples see **2.2.**

3.2. /ʔ/ has the allophones [ʔ] before V or C and finally, and [ˀ] (glottalization of consonant) after C. Although /t k j m s/ occur glottalized, there seems no reason to set up a glottalized series since there is nowhere a contrast with the plain consonant plus [ʔ]. Example in final position: amuši ʔ 'angleworms'. For other examples see **2.2.**

3.3. /m n ŋ/ are nasals and are respectively bilabial, alveolar and velar. /m/ and /n/ contrast initially and medially before vowel, (cf. **2.2**), while /n/ and /ŋ/ are in contrast before /k/: issiníwi ʔnka 'Red Hill (a place)', i·wíŋkay 'little'. /m/ and /ŋ/ are not in contrast in my material, /ŋ/ occurring only before /k/ and /m/ never there, but it would be casuistry to attempt to define a nasal phoneme which would include them but exclude /n/: (non-alveolar?) with [n] between them, they do not even deserve that Pikean police-docket designation 'suspicious pair'.[6]

3.4. /j/ is an affricate consisting of a palatalized apico-alveolar stop [t̡] and a palatalized alveo-palatal spirant [ʃ]. Since [t̡] never occurs except before [ʃ] and [ʃ] never occurs except after [t̡], either one of them may be regarded as determined.[7] However, since [t̡ʃ] may, by its distribution, be regarded as a binary segment,[8] we need not try to solve this difficult problem of determination. /j/ is remarkably congruent with the stops, which are homotypical with its first part. Its features are alveo-palatal position and palatalization. Allophones: [č] ([t̡ʃ]) before /h/ and voiceless consonants and in final position, [j] (x[ɖʒ]) elsewhere. /j/ is in contrast with /tš/ and /ts/: jiji·na *little dark ant*, ʃʔtšípí *fog*, atsíska *breast*.

3.5. /s z š x/ are spirants. The first three are slit sprints, /s z/ being post-dental, while /š/ is post-alveolar (and unpalatalized). /x/ is dorso-velar (homorganic with /k/ rather than /q/). /z/ is voiced, the others voiceless. All occur intervocalically: pətísehe. *I'm not going*, heyurízə *baby*, jipiši *copperheaded chipmunk*, póxóm *poison hemlock*. /z/ occurs only intervocalically, but the other three are in contrast before /j/: asjomi *rattlesnake*, e·šjikir *buckthorn berry*, maxjíw *he went hunting*, and all three occur initially (/x/ only before C) and finally.

3.6. /r/ is an apico-alveolar flap (never a trill), voiceless in final position, partially voiced in clusters with voiceless consonants, and voiced elsewhere. /l/ is an alveolar lateral, always voiced. /ṙ/ and /l̥/ are in contrast: krá ʔtótho·p *Red Bud (a plant)*, kla ʔmás *pinetree ant*.

3.7. /θ/ is a very rare interdental affricate [t̡θ]. Since [t̡] occurs only before [θ] and [θ] occurs only after [t̡] the status of this phoneme is comparable to that of /j/.[9] It is NOT in complementary distribution with /th/, as stated in PS II, since the latter does occur in medial position (cf. **3.6**).

3.8. Also occurrent are the long segments [p· m· n· s· l·]. Two types of evidence suggest that they should be interpreted as geminate clusters. The phonetic evidence is the distribution of vowel allophones: the lower allophones [I ɛ U ɔ] occur before the above long segments as they do before consonant clusters. The evidence from phonemic distributions relates to Bloch's Postulate 46.1 and Definition 46.2, which concern the congruence of conjugate consonantal segments with a dyad of homotypical consonants. In such a case, interpretation of [C·] as [CC] is indicated. Since the long segments [p· m· n· s· l·] are in Atsugewi congruent with dyadic consonant clusters that are homotypical (e.g. [tp, pk], we conclude that they are /pp mm nn ss ll/.

3.91. In addition to the dyadic clusters of consonants listed in Table I, the following clusters of three or more are occurrent.

/ʔkl/ pu ʔkla ʔama·s *ant*; /ʔtʔ/ na ʔtʔájolo· *mountain balm*; /tsn/ qotsəkpátshetsne *that's the man that did it*; /pst/ kəpstí· *arrow*;

[6] Kenneth Pike, Phonemics, Glendale (1943).
[7] Bloch, Postulate 41.1, Definition 41.2.
[8] Bloch, Postulate 45.1, Definition 45.2.
[9] Compare the statement in PS II 6.

TABLE I

	i	i·	e	e·	a	a·	o	o·	u	u·	ə	ə·	h	y	w	p	t	k	q	ʔ	m	n	ŋ	s	z	š	x	r	l	θ
i				ié	Ia		io		Iu					Iy	Iw	Ip	It	Ik	iq	I,	Im	In	ŋ	Is	fz		ix	Ir	il	i
i·													ẽh	ẽy	I·w	I·p	I·t	ẽk		ẽ·j	I·m	I·n	ẽŋ	i·s	ez	ẽ·š				
e														e·y	ẽw	e·p	ẽt		é·q	é·j	é·m			é·s			ex		el	
e·													ăh	ăy	ăw	ăp	ăt	ak	ăq	ăj	am	an		ăs			ăx	ăr	al	
a									au																					
a·													ŏh	ŏy	o·w	ŏp	ŏt	ok	ă·q	ŏ·j	o·m			a·s			ŏx	or	ol	
o														o·y	ŭw	o·p	o·t	ŭk	ŏq	ó·q	ŭm	un		os			o·x			
o·														ŭy	ŭw	ŭp	ŭt	ŭk	uq	ŭj	um	ŭ·n		ŭs		uš		ŭr	ŭl	
u	ul													ú·y												ú·š				
u·	u·l												əh		əw	əp	ət	ăk	ăq	əj	ə́·m	ən		ăs			ə·x	ər		
ə																					hm						hx			
ə·														hy	hw	hp	ht	hk	hq	hj	ym			ys				hl		
h									hu		hə		yh		yw		yt	wk	wq	y?	wm			ws					wl	
y	yi								yu		yə					wp	wt	pk		w?				ps				wr	pl	
w	wi								wu		wə	wə	ph	py	pw	pp						pn		ts				pr		
p	pi								pu		pə		th	ty	tw	tp				pj				ks				kr	kl	
t	ti								tu	tú·	tə		kh	ky	kw	kp				tj		kn								
k	ki								ku		kə		qh		qw					kj	km									
q	qi										qə		jh					jk		qj										
j	ji								ju	jú·	jə		ʔh	ʔy	ʔw	ʔp	ʔt	ʔk	ʔq	j?	jm	ʔn		ʔs				ʔr	ʔl	
ʔ	ʔi										ʔə						mt			ʔj	ʔm									
m	mi								mu		mə			ny	nw					m?	mm	nn									
n	ni								nu	nú·	nə							ŋk												
ŋ													sh	sy	sw	sp	st	sk	sq	s?	sm			ss				sr		
s	sI								su	sú·	sə									sj										
z											zə																			
š	šI																			šj										
x							xó							xy	xw	xp	xt	xk		xj		xn					xr	xl	
r	rI	ri·	re	lé·				ro·			ra													sr						
l	lI		lé				lŏ	lo·	lŭ		la																		ll	
θ	θi																													

/tsk/ qətskəpwéwqát *it's burning well*; /ʔtš/ íʔtšípí *fog*; /tsp/ ə́tspəké· *lake*; /qts/ móqtsa *all*; /mpj/ niwmpjiki *weasel*; /ssk/ tʔəsski *round tule*; /jʔk/ ne·jʔkət *little salmon flies*; /tst/ utstáywoho *near*; /ʔnt/ aʔwí·miotakíʔnti *Hat Creek Post Office*; /ʔnk/ issiníwiʔnka *Red Hill*; /tsʔ/ júpwímítsʔ *smoke*; /kst/ akstá·tyu *McGhee Peak*; /ʔts/ íʔtsaw *tooth*; /tʔsp/ tʔspa· *bark*.

3.92. Consonant occurrence outside of clusters include initial +V /p t k q j m n s š r l/; medial VCV /p t k q j ʔ m n ŋ s z š x r l θ/; final VC /p t k q j ʔ m s š x r l/.

4. Atsugewi has three phonemic degrees of stress: ordinary (referred to here as 'unstressed' and left unmarked), strong stress /'/ and contrastive stress /ˆ/. Utterances are usually characterized by some combination of ordinary and/or strong stresses. Some have only ordinary: tʔspa· *bark*, namistaq *cloud*. Some have only strong: tátá *father*, júpwímítsʔ *smoke*. When an utterance has contrastive stress, it always appears where the utterance usually has strong stress: iwà· *come ON*, usually iwá· *come on*. When an utterance has more than one strong stress, contrastive stress can appear in place of any or all of the strong stresses: tú·suyá· *rub* or tù·suyá· or tú·suyà· or tù·suyà·. Thus in the table of dyadic occurrences of Atsugewi phonemes, no indication is given of the distribution of /ˆ/, its range being assumed to be the same as that of /'/, though it is much less frequent.[10]

5. When ˇ is written over the vowel of a sequence, it indicates that the sequence occurs with both strong and ordinary stress, e.g. ěh shows the occurrence of /éh/ and /eh/. Sequences which occur with strong stress only are marked ', e.g. á·p. Sequences which occur with ordinary stress only are unmarked, e.g. ix.

6.0. My materials for the analysis of pitch phenomena are too sparse for a confident statement at this time, since it has proved difficult to get any of the speakers of the language (there are probably no more than five or six, all well along in years and accustomed to speaking English most of the time) to dictate texts of any length. Tentatively, there seem to be at least three distinctive contours, all ending at pause: rising /ʔ/, level /-/, falling /+/. Examples: qwa·kjinuwijma ʔ *Was he already asleep*ʔ, jippíʔauthéʔwoxó- *It's under the boat*, nipé·məjiksaʔe+ *you know it*.

[10] Cf. the statement in PS I, where contrastive stress goes unmentioned.

WORKING DICTIONARY OF TÜBATULABAL

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0. Acknowledgments
1. Vocabulary

0. Stimulated by the resurgence of work in the California Indian Language Survey, I offer herewith the corpus which served in field work as a 'working vocabulary' for purposes of eliciting in morphology-syntax. (Other lexical items may be abstracted from the published texts.[1])

I am glad to acknowledge that Elsie F. Dosch accomplished the delicate task of converting the old style orthography used in the published grammar[2] and texts into the currently fashionable orthography with no more direction than a list of orthographic equations: let ts = c; dz = ʒ; dʒ = ǯ; tc, tʃ = č; c, ʃ = š. The equations for vowels involved not only switching in orthography but grouping of allophones (except /a/ which remains /a/): let i, ɪ = i; ï, ʌ, ə = i; u, ʊ = u; e, ɛ, æ = e; o, ɔ = o; a = a.

After the typing, most of the work of checking the typescript against the lexical card manuscript was borne by Glen D. Turner with whom it was a pleasure to discuss a small alternation made in phonemic specification having to do with subphonemic devoicing of continuants. In the new specification, below, three sonorants, /m n l/, are voiceless not only under conditions of metathesis (when the sequence of /h/ followed by sonorant is metathesized to sonorant followed by /h/), but also when these sonorants appear in word-final after /š/ or after other voiceless consonants.

[1] Charles F. Voegelin, Tübatulabal Texts, UC-PAAE 34.191–246 (1935).

[2] UC-PAAE 34.55–190 (1935); the University of California Press replaced my back high open manuscript vowel [ʊ] by Greek mu (*sic*!), and placed an inverted wedge over [o] to indicate my open [ɔ].

I am glad to say that Kenneth Hale's feeling for writing /ʔ/ before initial vowels (influenced perhaps by his work in Papago) agrees with my own (influenced no doubt by my recent work in Hopi).

1. The 'working vocabulary' which now follows is alphabetized in the English order, with non-English letters following after the nearest English one (as /č/ after /c/, and /i/ after /i/). For purposes of alphabetization the glottal stop is disregarded in the word-initial sequence ʔV-.

ʔa

ʔa·nin-t *yellow ants*; ʔa·wa-t *the horn* (*of any animal*); ʔa·baʔiw(-it) ∼ ʔa·ʔabaʔiw *it is showing*; ʔa·bawina-l *the devil*, ʔa·bawina-n *his soul, ghost*; ʔa·da·way(it) ∼ ʔa·da·wa·i *to drill fire*; ʔa·ʒayibiš-t *the bluejay*; ʔa·ʒowa·-l ∼ ʔaʔa·ʒowa·-l *the shaman* (∼ *plural*); ʔagi *who*; ʔaha·iž ∼ ha·ič *to chew it*; ʔaha·m ∼ ʔaʔaha·m *to put it away*; ʔa·hy- ∼ ʔa·yh *to quit, to let it go*; ʔa·i *Oh!*; ʔa·k- ∼ ʔaʔa·k *to open one's mouth*; ʔakapiš-t *the crow*; ʔakaʒi·p *across*; ʔaʔay ∼ ʔayyi *to pick it from the ground*; ʔalaʔaš *hurry up*; ʔalaʔ ∼ ʔaʔalaʔ *to lubricate with spit*; ʔalalalibič *thin*; ʔala·w- ∼ ʔaʔala·u *to talk*; ʔalhan-(t) *the jaw bone*; ʔa·li-t *the bow*; ʔa·ma·(hi) *mythical animal*; ʔa·ma·bič *merely, first time, just*; ʔamaha ∼ ʔaʔamaha *it is felling*; ʔamay *anyplace, some place*; ʔamaŋata-l *anyone*; ʔa·ma·yu *with*; ʔamhaižiŋa *ten*; ʔanab ∼ nap *to throw it*; ʔanaŋ- ∼ naŋ *to make him cry*; ʔana·nu·-l *balsam tree*; ʔana·wišm *the Pleiades* (*7 stars*); ʔanagamʔ(ut) ∼ ʔaʔanagamʔ *it is level*; ʔa·na·hl-(it) ∼ ʔaʔana·lh *to fast*; ʔanambi·-l *the feather in band*; ʔa·namu·g-(ut) ∼ ʔaʔa·namu·k *to be hungry*; ʔanana·uʔ-aniganan *four year old deer*; ʔana·uwibi·naš *every little while*; ʔa·na·wiš-t *the girl*; ʔa·na·

yu·mat ~ ʔa·ʔa·na·yu·m *to boast*; ʔa·na·yuw-(it)- ~ na·yuw *to fight*; ʔandaŋ *to kick*; ʔandaŋamin ~ taŋamin *to step on it*; ʔaŋgamu·-mi-n *his relatives*.

ʔapaba·iʔaniganan *three year old deer*; ʔapawiču·-l *the grove of alder*; ʔapaca·hat ~ paca·h *to shell pine nuts*; ʔa·š-(it) ~ ʔaʔaš *to bathe*; ʔa·ša·iʔ ~ ʔaʔašaiʔ *it (weather) is cool*; ʔa·šawi-t *the eagle*; ʔa·šay ~ ʔa·ʔašay- *it cools off*; ʔa·šiyan *left side*; ʔacu *empty word*; ʔa·w- ~ ʔaʔau *to gossip*; ʔa·wilibi·-l *ash tree*; ʔa·y- ~ ʔaʔa·i *to call*; ʔaya·w-(it) ~ ʔaʔaya·u *to grow*; ʔaya·wit ~ ʔaʔaya·u *it is growing*; ʔašag-(it) ~ ša·k *to roast it*; ʔa·ẓa·ya·w- ~ ca·ya·u *to yell*.

c

caʔapi-l *the ribs*; cabaha ~ ʔacabaha *it is torn*; caki·bi·-l *blackbird*; ca·ig-(it) ~ ʔa·ẓa·ig *it is meshed*; cama ~ ʔanẓama *it's burning*; cawanin-t *grey squirrel*; cawhca·hwat ~ ʔacawhcawh *he is whispering*; ce·ye·ʔ-it ~ ʔe·ẓe·ye·ʔ *it is sour*; ce·cumuk *do as you please!*.

cinini·ʔ ~ ʔicinini·ʔ *to shake in fright*; cininʔcininʔ ~ ʔicininʔcininʔ *it twitches*; cimimi·ʔ ~ ʔicimimi·ʔ *it shines from polish*; ciiʔẓiiʔ ~ ʔiciiʔẓiiʔ *to shake from cold*; cibibi·ʔ ~ ʔicibibi·ʔ *it shines (reflected light)*; cili·w- ~ ʔicili·u *it flows over*; cili·w- ~ ʔicili·u *to cross ridge of mt.*; cimil *the mouse*; co·h *gray fish*; cohmo·iw ~ ʔocohmo·iwiša *it's rough*; como·-l *the head hair*; co·mi·k *down*; cu·ʔaya *down*; cukcuguš-t *the kingfisher*; culu·m ~ ʔuculu·m *to sleep*; culus-t *woodpecker*; culuta ~ ʔuculuta *to stick in the mud*; cuŋg-(ut) ~ ʔunẓuŋk *to be frightened*; cupa ~ ʔucupa *it (fire) is out*; cupuẓupa *it burns out all the time*; cuyu·-l *white rock, lime*.

č

ča·g- ~ ʔa·ža·k *to part her thighs*; čehma ~ ʔečehma *to be silent*; ča·mi-l *acorn mush*; čahpani·-l *spiked white flower*; če·u-l *red bird*; či·č *one*; čiʔigo·-l *the brain*; či·na-l *the hail*; čiŋiya-l *the red thistle*; či·u-t *the lime*; čiko·lolon-t *the butterfly*; či·do·bilah *meadowlark*; či·d- ~ ʔi·žit *to scoop it up*; čiki·-t *bird*; čila·la ~ ʔičila·la *it is cracked*; čilžil ~ ʔičilžil *it (water) is clear*; čila·la ~ ʔičila·la *it splits*; či·čwana·b- ~ ʔiči·čwana·-bi *to accompany*; čonoʔ *the twins*.

ʔe

ʔege·wan *big*; eh *there*; ʔela ~ ʔeʔela *to jump*; ʔele·g-(it) ~ ʔeʔele·k *to look out*; ʔeleʔegin-(it) ~ ʔeʔeleʔegin *to observe him*; ʔele·lina-t *the hat*; ʔe·me·data-l *old timer*; ʔewe·wibil *light (in weight)*.

h

ha· *yes*; haʔ-(it) ~ ʔa·haʔ *to hear*; ha·-l *willow*; ha·biš-t *sugar*; haʔadulun-t *the mud*; haʔibiʔ-(it) ~ ʔahhaʔibiʔ *to joke*; haiʔila ~ ʔahaiʔila *to stink, to smell*; ha·inda *what, nothing*; ha·iži·biʔ-(it) ~ ʔa·ha·iži·biʔ *to chew cud*; halʔ-(it) ~ ʔa·halʔ *to sit, to live*; halʔhal ~ ʔa·halʔhalʔ *it is hollow*; halʔhalit *the hole*; halaiʔ-(it) ~ ʔa·halaiʔ *to be wet*; ha·lala *Bravo!*; hali·l *Sunday*; hamaša- ~ ʔahamaša *to be sad*; hani·-l *the house*; hapši-l *the thigh, the upper leg*; hataʔab- ~ ʔahatap *it sticks on*; hata·w- ~ ʔa·hata·u *to cross it*; hatha·d- ~ ʔahataʔha·da *it is dripping*; hata·ban ~ ʔahata·ban *to patch*; hatišah- ~ ʔahatišah *to sneeze*; hawa·ban *in its neighborhood, next to*; ha·wa-l *the wood rats*; ha·y- ~ ʔa·ha·i *to stir with fingers*; haʔayah-l *the trout*; hayi· agi *nobody*.

heuʔheːw-(it) ~ ʔeheuʔheuʔ *to trot*; heʔewi·n-(it) ~ ʔeheʔewi·n *to lift it, to hold in lap*; hi·lo·giš *trapdoor spider*; hiliʔ-idac *the clown*; hili·daʔac-(it) ~ ʔihilidaʔac *to clown*; hilo·h-t *hole at collar-bone*; hištih *10¢ = 'a bit' = one unit of money*; hiu·hiw-(it) ~ ʔi·hiuw- *to look out for him, to observe*.

hobo·ʔ ~ ʔohobo·ʔ *it's in pieces*; hoca-l *plant with blue flower*; ho·h- ~ ʔoho·h *to cough*; hoili·g- ~ ʔo·hoili·k *it (water) is murky*; ho·iwi-l *the anus*; ho·lo·hpi·-l *the bulb for wiyit*; homʔmo-l *cooking basket*; homʔmobi-t *ladle for homʔmol*; hono·dan- ~ ʔohono·dan *to make her pregnant*; ho·ya-t *brush enclosure*; ho·yibiʔ-(it) ~ ʔo·ho·yibiʔ *to watch over him*; ho·yo·d- ~ ʔo·ho·yo·t

to touch genitals; hu·ʔ- ~ ʔu·hu·ʔ *it is leaking*; huʔubanah *the widow, widower*; hu·da ~ ʔuhu·da *it (sun) is up*; hulʔhulʔ ~ ʔu·hulʔhulʔ *it is green*; huiy *the transvestite*; hu·yu·du-(ut) ~ ʔu·hu·yu·du *to make fiesta*; humboya·m *Kelsi canyon*.

ʔi

ʔi·ʔ-(it) ~ ʔi·ʔi· *to drink*; ʔibi·ʔ-(it) ~ ʔiʔibiʔ *it blooms*; ʔibi·miya·-l *April*; ʔicehe *go on!* (*when narrator paused*); ʔigišpil *little bit, small amount*; ʔigin-(it) ~ ʔiʔigin *to swing up foot*; ʔigo·ši·k *away, outside*; ʔih *here*; ʔiki·k *this way*; ʔiklo·ba-l *the fox*; ʔin-(it) *to do it*; ʔindama· *someone*; ʔindama·-ʔi *something*; ʔindiŋwa- ~ tiŋwa *to name-call him*; ʔipi-t *the horse fly*; ʔišib- ~ ši·p *to whittle, to shave*; ʔi·šilu·b- ~ šilu·p *to split wood*; ʔi·šiug- ~ šiuk *to comb one's hair*; ʔišwaʔadu-l *Tamerack, like juniper*; ʔiwa-t *the water basket (bottle)*; ʔiwinaŋha-l *Bishop Indian*; ʔiwinaŋhi ~ ʔi·winaŋhi *to speak Mono*; ʔihk-(it) ~ ʔiʔixk *to breathe*; ʔi·yaw- ~ ʔi·ʔiyau *to stop*.

ʔi

ʔibih *Oh!*; ʔi·ši·wanami·k *different branches*; ʔicihk- ~ cihk *to stick him*; ʔihi·b-(it) ~ hi·p *to message*; ʔi·hid- ~ hi·t *to pluck the duck*; ʔi·di·ʔ-(it) ~ ʔiʔidi·ʔ *it is hot*; ʔidih *Ouch!*; ʔi·ẓim *long time*; ʔi·ẓimiʔ-(it) ~ ʔiʔi·ẓimiʔ *to stay*; ʔi·iʔa·n- ~ ʔi·ʔi·iʔa·n *to meat-fast*; ʔi·ibil *slow, slowly*; ʔihabi·-l *green gourd*; ʔihyimbiš-t *road runner*; ʔikwi ~ ʔiʔikwi *to menstruate*; ʔili·g- ~ ʔiʔili·k *to wake up*; ʔi·li·ʔ *to be alive*; ʔiliibaʔ-at *he wants to come to life*; ʔi·maˑ- ~ ʔi·ʔima *to tie bands*; ʔimbiŋw- ~ piŋh *to roll string on thigh*; ʔimili·d ~ mili·t *to scold him*; ʔimbi *more, again*; ʔiniʔ *Help!*; ʔiniʔan- ~ ʔiʔiniʔan *to be stingy*; ʔinihyi ~ ʔiʔinihii *to be sick*; ʔiniʔ-(it) ~ ʔiʔiniʔ *it hurts him*; ʔiŋgi-l *the foot*; ʔiši-t *the blanket*; ʔišiʔiga-l *blue squirrel*; ʔi·šiwaluʔ-(ut) ~ ʔiʔi·šiwaluʔ *to disrespect him*; ʔi·šiy-(it) ~ ši·i *to rock the cradle*; ʔitiša-l *clothes*; ʔiw- ~ ʔiʔiu *to trap*; ʔiwiʔaʔŋ *yesterday*; ʔi·win- ~ ʔi·ʔi·win *to stand up*; ʔihcaw- ~ ʔiʔihcau *to help him*; ʔihkowaʔ-(it) ~ ʔiʔihkowaʔ *the wind blows*; ʔi·y-(it) ~ ʔi·i *to steal*; ʔiya·-l *low cactus*.

k

kaboba·ʔ ~ ʔakaboba· *it is rattling*; kahi ~ ʔakahi *to be lazy*; kaʔišn *his chin*; ka·luk-t *the armpit*; kamʔ-(ut) ~ ʔaŋgamʔ *it fits*; kami·ẓ-(it) ~ ʔakami·č *to catch it*; kaŋa·-l *the facial hair*; kata·-l *the racoon*; katahwa ~ ʔakatahwa *they are sick*; kau·liš-t *the ankle*; ka·wišm *the Kawaisu Indians*; kaʔawi·-t *the grasshopper*; ka·ẓa ~ ʔa·ga·ẓa *to boil it*; ka·ẓu-l *the clay pot*; ke·ẓabit *pretty*; ki·g ~ ʔikik *to sack, to store, to load*; ki·lah-(it) ~ ʔi·gi·lah *to measure beads*; kim- ~ ʔŋigim *to come*; ki·ma *somebody*; kin-(at) ~ ʔiŋgin *he brings it*; kita ~ ʔikita *it is locked*; kiʔiẓ ~ ʔikiʔič *it is entering tightly*; ki·ẓa ~ ʔi·gi·ẓa *to freeze to death*; kiˑʔ-(it) ~ ʔi·gi *to bite*; kikay *early*; kiʔima ~ ʔikiʔima *it's tight*; ki·na-l *red plum*; kiwa·-l *the teal, little duck*; kiyi·-l *the arrowhead*.

kohkohwin ~ ʔokohkohwin *to pound it*; komi·la ~ ʔokomi·la *to be cramped*; koʔoši *the minnow fish*; ko·yo·-t *the turtle*; ku· *and*; ku·-l *small greasy seed, yellow flower*; ku·giš-n *his fingers*; ku·g ~ ʔukuk *to point*; ku·hupi-l *elderberry*; kuk-t *the mescal*; ku·l- ~ ʔu·gulʔ *to play*; kula·biš-t *the duck*; kula·-n *his neck*; kuma·waʔ(it) ~ ʔuŋguma·waʔ *it is shady*; ku·ŋa-n *her husband*; ku·ŋut ~ ʔu·gu·ŋu *she married*; kutu·b- ~kutu·p *to make acorn balls*; kutug-(ut) ~ ʔukutuk *to gather fire wood*; ku-t *the fire*; kuy-(ut) ~ ʔu·gui *to hide it*; kuya-t *Yucca whipplei*; kuyiʔ ~ ʔu·guyiʔ *to look for it*; kuyu·-l *fish*; kuyu·-n *his lower leg*; kuʔužubil *little*.

l

la·gi·h *mine*; lalan-t *the tongue*; lalwaš-t *the pine nut cache*; lamʔ ~ ʔalamʔ *it's getting soft*; lapaʔapi·-l *the hawk*; lahhya ~ ʔalahhya *it is loose*; lečeleča ~ ʔelečeleča *to skip*; leša ~ ʔeleša *it is opening*; le·uše·p *mythical otter*; le·win- ~ ʔele·win *to pack it*; li·miʔli·ma- ~ ʔi·li·miʔli·mi *to blink*; loʔ-ogi·n ~ ʔoloʔogi·n *to take off a strip of bark*; lo·goʔ-(ot) ~ ʔo·lo·goʔ *to be crazy*; loho·m-

~ ʔolhomʔ *to enter*; luˑluʔ ~ ʔuˑluˑluʔ *to play the flute*; luˑma ~ ʔuˑluˑma *it is coming off*; luˑmuʔat ~ ʔuˑluˑmuʔin *is filling it up*; luˑnaš *Monday*.

m

maˑ *where*; matwan *what kind*; maˑl *which one*; manaˑwin *his whereabouts*; maˑʔayn *where from*; maʔ *Hello*; maʔ- ~ ʔaˑmaʔ *to touch it*; maˑl *the hand*; maˑg- ~ ʔamak *to know it*; maˑgula-t *the weasle skin purse*; maʔiniš *why*; maˑhaiẓiya *five*; maha- ~ ʔamha *to give it*; maˑig- ~ ʔaˑmaˑik *to go ahead*; maˑigila ~ ʔaˑmaˑigila *to run*; maˑlaˑw- ~ ʔaˑmaˑlaˑu *to raise one's hands*; manaˑl *the metate*; maneˑžaʔ *deadly nightshade berries*; manhigiš *how many*; maˑncuʔ-(ut) ~ ʔaˑmaˑncuʔ *to be tame*; mapil *now, today*; maŋiˑl *the acorn from goat ranch*; maˑš-t *seed*; maša- ~ ʔamaša *to cover it*; maˑša-t *the bag*; maši-l *grass, weeds*; maˑwišu-l *pine nut pole*.

meˑda *already*; miˑʔiˑun *right there*; miʔipil *close*; miʔiču *from there*; milhʔmihl- ~ ʔimilhʔmilh *it tastes good*; miˑm *because*; miˑn- ~ ʔiˑmiˑn *to take it*; mina *too*; miy- ~ ʔiˑmiy *to go*; miyaˑneˑwah *there on this side*; miyaŋhiˑk *this way*.

migitih *mythical character*; miˑga- ~ ʔiˑmiˑga *to stretch*; miʔig- ~ ʔimiʔik *to kill him*; mihiʔ ~ ʔiˑmihiʔ *to lie down*; mihiiy- ~ ʔimihii *to mt. climb*; miˑhliˑn ~ ʔiˑmiˑhliˑn *to hurt her*; mihma- ~ ʔimihma *to be drunk*; miliʔig- ~ ʔimiliʔik *it is smooth*; minina- ~ ʔiminina *it rolls*; miˑš-(it) ~ ʔiˑmiš *to sit cross-legged*; mišk-(it) ~ ʔimišk *to lead*; miˑw- ~ ʔiˑmiˑu *to forget it*; miˑya-l *the month*; miˑyabiš-t *the moon*; miyiʔiwa- ~ ʔimiyiʔiwa *rounding up*.

mohka-t *the belt*; mohoš-t *domed dwelling house*; moliʔhl- ~ ʔomoliʔlh *to deceive him*; moʔolohy *the brown bear*; mokowiš-t *band-tailed pigeon*; moˑmoˑh-t *Jimson-weed*; monʔmoˑn-(ot) ~ ʔomonʔmonʔ *it is boiling*; mošoˑha-t *the lungs*.

muˑš-t *the fish shear*; muˑdaka ~ ʔuˑmuˑdaka *to dodge*; muˑgin ~ ʔuˑmugiˑn *to hurt him*; muhumbiš-t *the owl*; muˑhy-(ut) ~ ʔumuˑih *to make a fiesta*; muluˑgaʔ-(it) ~ ʔumuluˑgaʔ *to herd together*; muluŋwa-l *the round one*; muluʔuŋa- ~ ʔumuluʔuŋa *it's getting round*; muˑluw- ~ ʔuˑmuˑluh *to dance*; mupi-t *the nose*; muˑš-n *his bullet*; muˑšah-t *the sweat house*; muwaˑ-l *the mountain*; muˑʔiš-t *the hill*.

n

naˑbiˑdu ~ ʔanabiˑdu *to hug, embrace*; naˑbunẓiya *eight*; naʔac *just*; naˑdiʔ *the cat*; naˑgaˑw-(it) ~ ʔaˑnaˑgaˑu *to hold up one's head, to sit in the shade*; nahaˑ-l *the louse*; naha-t *the cane*; naˑnaˑu *four*; naŋgawiliʔat *the earrings*; naŋha-l *the ears*; naŋhabiˑ-l *the leaves*; napaˑi *six*; nawambil *few*; nawiˑ-l *the woman's apron*; naˑwidami *between, in the middle*; naxpaʔad-(it) ~ ʔanaxpaʔat *to make noise*.

neˑʔin- ~ ʔeˑneʔin *to depend on him*; niŋaʔado-l *the awl*; nitaˑyi-l *the roof rafters of a sweat house*; niˑx-t *the tule raft*; nibaʔ-(it) ~ ʔinibaʔ *it is snowing*; niha- ~ ʔiniha *to drop down*; niˑma-l *the liver*; nimbuŋgu-l *the poor man*; nimʔmiʔig- ~ ʔinimiʔik *to murder human*; nimiciŋwi ~ ʔinimiciŋwi *to help him*; niˑnaˑway- ~ ʔiˑniˑnaˑwayica *he stays*; niuʔwa- ~ ʔiniuʔwa *to not*; niuʔniˑwin- *to shake hands*; nixnanaˑk *in the company of*; niʔiyiˑn- ~ ʔiniʔyiˑn *to bend it*.

nogoiʔnogoiʔ- *it zigzags*; noˑʔ-(ot) ~ ʔoˑno *to turn back*; noh-(ot) ~ ʔonoh *to roast in ground*; nomnẓin *seven*; noŋoˑiʔi-l *the outlaw*; noŋoˑyi ~ ʔoŋoŋoˑyi *to wrestle*; nuˑba ~ ʔuˑnuˑba *to pulsate*; nuˑʔ ~ ʔuˑna *to clean sediment*; nu-l ~ ʔuˑnuˑl *to push him*.

ʔo

ʔoˑbaˑ-n *his muscle*; ʔob- ~ ʔoʔop *to dive*; ʔobiˑbuˑ-l *little duck, little chicken*; ʔoˑbiwi-t *the strength*; ʔogon *empty word*; ʔoholaˑ-l *the canyon*; ʔoˑl-(it) *to get up, to fly*; ʔoˑlilat ~ ʔoˑliˑla *to go after*; ʔoˑligiˑmat ~ ʔoˑliˑgim *to come after*; ʔologoˑg- ~ logoˑk *to uproot*; ʔolon-t *the staff pole*; ʔoˑm ~ ʔoˑʔom *to string beads*; ʔomholok *under*; ʔomhombit *mud diver bird*; ʔomohic

each other; ʔomoix *himself*; ʔomok *empty word*; ʔo·no·ban *outside*; ʔo·no·l *the back*; ʔo·no·mini·k *backwards*; ʔopo·bo-l *purple berries*; ʔošolo·ŋ-(ot) ~ šolo·ŋ *to snore*; ʔotolo·h-(ot) ~ tolo·h *to groan*; ʔo·w ~ ʔo·ʔou *it is marked*; ʔo·wan- ~ ʔo·ʔowan *to write*; ʔowo·g ~ ʔoʔowo·k *it's swelling up*; ʔowi·-t *the dove*; ʔohta- ~ ʔoʔohta *to ask him*; ʔo·y- ~ ʔo·i *to pass by*; ʔo·ya-t *the money*; ʔo·yo·gat ~ ʔo·yo·k *he is mowing*.

p

pa·ʔa-t *the mountain sheep*; pa·-l *the water*; pa·n *the soup*; pa·bi ~ ʔa·ba·bi *to be tired*; pa·ẓi·wa-t *the lake*; paca·h- ~ ʔapaca·h *to shell it*; paca·hi-l *shelled pine nuts*; paca·ʔin ~ ʔapaca·ʔin *he caches*; paca·wa-l *the bat*; paca·hil *pine nuts*; pacuʔa·-t *the pond*; pacis-t *purple seed*; paʔaga-t *the birth hair*; pah-t *the tule mat*; pahaʔ-(it) ~ ʔapahaʔ *to death wail*; paha·bi-l *sugar cane*; paha·bi·l *can*; paha-l *rock mortar for grinding acorns*; pa·hu·-l *the war arrow*; pa·i·*three*; pa·iʔami *thrice*; pa·twanap *three o'clock*; pa·twan *three star constellation*; pa·iʔiŋ *Wednesday*; pa·ʔacu *all three*; paiʔiẓ-(it) ~ ʔa·baiʔič *to swim*; paiʔig-(it) ~ ʔa·baiʔik *to turn around*; pa·imh *some, others*; paiʔiy(it) ~ ʔa·baiʔiy *it is left over*.

pa·labata-l *the Yawelmani*; paʔagin- ~ ʔapaʔagin *to hit him*; palak ~ ʔapalak *to throw it*; pa·lib(it) ~ ʔapala·b- *he is soaking it in the water*; pa·lu·-l *the roots for fish poison*; pa·m- ~ ʔambam *to make into ball*; paʔan(it) ~ ʔapaʔana *it is plugged up*; pa·ndigit ~ ʔa·ba·ndik *to war*; pa·n- ~ ʔamban *to close it*; pa·nin-t *ants*; pa·ni-l *the rock corral for fish, mason jar for fruit*; panin- ~ ʔambanin *to be proud of*; pa·nugiš *male water sprite*; paŋata-l *the god*; paŋham ~ ʔambaŋham *to hide in the blind*; paŋhama-t *the willow blind from which birds are shot*; paŋwa-l *the red clover*; papuluʔ-i-t *the whirlwind*; papuluʔ ~ ʔapauluʔ *it's whirling*.

pa·ša·ʔu-l *the buckeye*; pa·ši·-l *chia seeds*; paškiš-t *the spring (well)*; pa·šu·miš-t *the cloud*; pa·šu·miši-t *the fog*; pa·šu·miši·gim ~ ʔa·ba·šu·miš *to get cloudy*; pawa·du·-l *plant with yellow flower*; pawaš- ~ ʔapawaš *to play shinny*; pawiču·-l *the stream alder, red bark*; pa·wili·gan-t *the geese*; pahkan-(it) ~ ʔapahkan *to speak*; payawaʔin *its front*.

peʔ- ~ ʔe·ba *to hit by throwing*; pele·w- ~ ʔepele·u *to open it up*; pe·welaŋ *first*; pi·-l *the breasts*; piʔa·gin-t *the worm*; pi·bi·win- ~ ʔi·bi·bi·win *to play Jew's harp*; pi·šin- ~ ʔi·bi·šin *he is snoring*; pičili·-t *the striped squirrel*; pičo·giš-t *the horse-fly*; pičo·-l *the buttocks*; piga-t *the stone knife*; pigaʔaš *perhaps*; pigi·niš-t *the shirt*; piha- ~ ʔipiha *it is broken*; piho·li-t *the bow string, sinew thong*; pi·ʔiš-t *berry like gooseberry*; pin- ~ ʔimbin *to bring it*; pini *like, just the same*; piniyu *all, every, everyone, everything*; piš ~ ʔipiš *to go out*; piškiš-(it) ~ ʔipiškiš *it's got pus inside (as a boil)*; pi·ši-l *alkalai dirt for washing hair*; pišu·ga-t *the red racer snake*; pižaca- ~ ʔipižaca *the water is splashing*; pi·wi·-l *down feathers*.

pil- *to arrive*; piliʔ- ~ ʔipiliʔ *to be heavy*; pi·m-(it) ~ ʔimbim *it is full*; pišika- ~ ʔipišika *to slip*; pitita- ~ ʔipitita *to turn over*; pi·wai *naked, nakedly*.

poʔ- ~ ʔo·ba *to kindle a fire*; podo·yibič *soft, tender*; poʔoẓ- ~ ʔopoʔoc *to target practice*; poʔa·niš-t *wood for rheumatism*; poʔogošt *pillow*; pogoh *the borrowing owl*; po·h- ~ ʔopha *to smear it*; poh-t *the trail, the road*; poha·m *the rain maker*; pohola ~ ʔopohola *to get blisters (from working)*; pohoʔowa-l *pestle*; pokpo·go·na-l *king snake*; pokpo·gin ~ ʔopokpo·gin *to tattoo*; pololi·wa·bi·-l *gum plant*; polo ʔoma- ~ ʔopoloʔ-oma *it is bending*; poloŋ- ~ ʔopolo·n *to heat it*; pomp-t *the egg*; po·n-t *hide, body hair*; ponihw *the skunk*; po·ŋ- ~ ʔomboŋ *to cut hair*; poŋga-t *the basket cap*; poŋg-(ot) ~ ʔomboŋk *to put on basket cap*; po·ši(it) ~ ʔo·bo·ši *it is white*; poyiwoš-t *fine willow to wrap up fish*.

puʔiš-t *threshing basket*; puhmʔpuhm-*it is thick, broad*; pu·iy-(ut) ~ ʔu·bu·iy *to be full*; pukubiš-t *the dog*; pulu·ʔin- ~ ʔupulu·ʔin *to spin it*; pu·n- ~ ʔumbun *to*

tie (a knot); punẓi-l *the seed*; punẓiga·ẓa ~ ʔumbunẓiga·ẓa *to boil seeds*; punẓi-l *the eye*; puŋguʔ-(ut) ~ ʔumbuŋguʔ *to domesticate him*; pušk- ~ ʔupušk *to blow it*; puʔuman *its edge*; puw- ~ ʔu·buh *to irrigate.*

š

ša·-l *manure*; šaʔ ~ ʔa·šaʔ *to defecate*; šahna- ~ ʔašahna *to stop*; šala·n *vagina*; šamŋg- (it) ~ ʔašamŋk *to yawn*; ša·no-t *pitch*, ša·na·dan ~ ʔa·ša·na·dan *to pitch it*; ša·ŋkaʔ *the ditch*; šapuš-t *the belly*; ša·varu *Saturday*; ša·wi- ~ ʔa·ša·wi *to have a hangover*; ša·ya-l *the mud-hen*; še·gaʔše·ga ~ ʔe·še·gaʔše·ga *he is panting*; šeʔegapiš-t *the barn owl*; še·hi-l *game played with wa-t*; še·wa-n *his place between the eyes.*

ši·biʔi·-l *acorn tree*; ši·bi·-l *the acorn sp.*; šidoʔdo·ʔ-(ot) ~ ʔišidoʔdo·ʔ *to slide*; ši·duluš-t *the umbilicus*; ši·ga ~ ʔi·š·ga *to snuffle up*, ši·gišt *terpentine weed*; šiga·la·na-t *the willow house*; ši·gawiyam *the Koso Indian*; ši·gawiyam-(it) ~ ʔi·ši·gawigami *to speak Koso*; ši·gin- ~ ʔiši·gin *to skin it*; ši·hpi-t *the sand*; šiʔ-(it) ~ ʔi·šiʔ *to urinate*; šiʔi·bi·-l *the tule*; šiki-t *the upper arm*; šiko-l *the lizard*; šiko·niš-t *plant tuber to roast gum in*; šila·ganan *two year old deer*; šima·na *week*; ši·mi-l *the penis*; šiŋg-(it) ~ ʔišiŋk *to blow nose*; šip-t *the ice*; ši·wi-l *wild onions*; ši·uba *back again.*

si·-l *roots of yucca*; ši·b-(it) ~ ʔiši·p *to be cold*; ši·ʔ ~ ʔi·ša *to drive it*; ši·ʔawa-t *the forehead*; šiʔiwi-(it) ~ ʔi·šiʔiwi *it looks different*; šimin-t *the rattlesnake*; šiti·g- ~ ʔišiti·k (1) *to be restless* (2) *to be shaky* (*the earth*); šiwi·bi·-l *wood used for banging hair.*

šo·lo ~ ʔo·šo·lo *to dig a hole*; šoŋo-t *the little blanket*; šoʔogonhn-(it) ~ ʔošoʔogonh *to be drunk*; šoʔonoh *the fresh water clam*; šo·ʔitih *the seed*; šo·yi-n *his wife*; šo·biš-t *the old woman*; šu·-l *the stars*; šu·b *pulsates once*; šu·buʔšu·ba *to fuck*; šu·ʔ ~ ʔu·ša *to dry it*; šu·ʔi-t *the jackrabbit*; šu·iya-l *the spider*; šulun-t (l) *the finger nails*, (2) *the hoofs of bovines*; šumu·ma- ~ ʔušumu·ma *it is darkening*; šu·munapikanan *spike buck*; šu·na·wa-l *sibling between older and younger*; šupi-l *the eyebrows*; šuwa·-l (1) *the earth*, (2) *his years*; šu·wi-l *pubic hair.*

t

tabi·tlalah *yellow bird sings at dawn*; tabu·ʔupil *short*; taʔaga ~ ʔataʔaga (1) *to pay money to*, (2) *lift meat taboo*, (3) *to meet him*; tahambiš *the old man*; tahkin- ~ ʔatahkin *to sleep*; tahpun-t *the cottontail*; taka·h *the valley quail*; takaša-t (1) *the leather*, (2) *tanned skin*, (3) *carrying strap*; taki·-l *muller for metate*; takwa-t *acorn from Paiute Mt.*; ta·l *the day, the sun*; ta·lata·-ugibi·-l *the sunflower*; talaʔawa ~ ʔatalaʔ-awa *it* (*rope*) *encircles it*; tala·wiš-(it) ~ ʔatala·uš *to go around*; tala·w- ~ ʔatala·uš *he is encircling it*; taman-t *the teeth*; talu·ma-t *the breech clout*; tambi·ʔ ~ ʔandambi·ʔ *to lie*; tambil *most*; tan *if*; tana ~ ʔandana *to get down*; tanapi-t *the heel*; taŋ ~ ʔandaŋ *it is raining*; taŋgapi·-l *the baby hole*; tap-t *the sinew*; tapa·ya-l *the chipmunk*; tapiši·-l *the bread*; tapiš-(it) ~ ʔatapiš *to make bread*; tataha ~ ʔatataha *it's bursting open*; ta·twa-l *the man*; ta·twi ~ ʔata·twi *to sober up, to revive from sickness*; ta·wig-(it) ~ ʔa·dawi·k *to see it;* ta·wi ~ ʔa·da·wi *to be blind*; tayibo·ʔin *the rainbow*; taẓu·b- ~ ʔataẓup *to braid it*; tehiyi-(it) ~ ʔetehiyi *to be reconciled*; tei hawaʔan *right side.*

ti· *and, also*; tiktigi·-l *the small chicken-hawk*; timala·w- ~ indimala·u *to follow him*; timiwa-l *the chief*; tiwik *the tildee*; tib-(it) ~ ʔitib *to put it*; tiba-t *pine nuts*; ti·ba ~ ʔi·di·ba *to gamble*; tiʔa ~ ʔiʔidiʔa *to loan, to borrow it*; tibač *the wolf*; tiʔibinuga ʔadawa·l *the myth*; tiʔibinugaʔadaw ~ ʔitibinugaʔadau *to tell myth*; tibiha ~ ʔitibaha *it's breaking*; ti·bo·hiš-t *the medicine*; tišwiʔhit ~ ʔitišwaʔhiša *he is ready to die*; ti·ha-t *the fish bait*; ti·hata·n ~ ʔi·di·hata·n *to bait the fish hook*; tik ~ ʔitik *to eat* (*it*); tikigu·iʔ ~ ʔitikigu·iʔ *to cook it*; ti·na·way- ~ ʔindina·wai *to buy*; ti·ẓa ~ ʔi·di·ẓa *to sell it*; tiŋgi·-l *rock ledge*; tipi·m ~ ʔitipi·m *to play hand game*; tišawi·n ~ ʔitišawi·n *to cause him evil*; tišib ~ ʔitiši·p *to scrape deer-skin*; tiši-(it) ~ ʔitiši *to be bad, ill*;

titi·gin ~ ʔititi·gin *to cut tobacco*; tidi·g- ~ ʔititi·k *to have gonorrhea*; tidiha ~ ʔititiha *it's cut up, sewed up*; tiw ~ ʔi·diu *to find it, to guess*; ti·wi-t *the dust*; tiwili ~ ʔi·diwili *to fix it*; tiwipil *pretty*; tiwi *good*; tihhma ~ ʔitihhma (1) *it stinks*, (2) *to stay under water*.

to· *I don't know*; to·gin *its corner*; togogo· ~ ʔotogogo· *it is popping*; togo·iʔ ~ ʔotogo·iʔ *to decoy it*; toʔogon-t *the month*; toko·ʔin ~ ʔotoko·ʔin *to set deadfall traps*; toha ~ ʔo·doha *to hunt*; tohi·-l *the deer*; to·ʔi-l *the tule root*; to·ibi·-l *the tule*; to·ili ~ ʔo·do·ili *to think*; to·iy-(it) ~ ʔo·do·iy *to travel about*; to·mo·gal *bumble bee*; tomocka ~ ʔotomocka *to stumble*; tondonẓi-l *medicine berries*; toŋo·-l *the knee*; to·yan ~ ʔo·doyan *he is copulating*.

tu·-l *embers, charcoal*; tu·-t *salt grass, already gathered*; tu·bu·l *salt grass, growing*; tu·ši *straight, straightaway*; tu·šiga·-l *burial place*; tugaʔan-(it) ~ ʔutugaʔan *to make it deep*; tugaʔ *deep*; tu·git *the night*; tu·ga·iya·-l *the actual bird*; tu·gayaya·-l *the mythical bird*; tu·gu ~ ʔu·du·gu *it is dark*; tugu·bišn *his dirt*; tugu·biš-(it) ~ ʔutugu·biš *it is dirty*; tu·gu·kwi-t *the mountain lion*; tuha-t *the water snake*; tuhuʔa- ~ ʔutuhuʔa- *to spit*; tuʔi·-l *the flour*; tu·ʔilam *the boy*; tu·k-t *mountain quail*; tukluluh *the screech owl*; tulu·ʔula- ~ ʔutulu·ʔula *to get up from sitting*; tulu·ʔuma ~ ʔutulu·ʔuma *it rolls*; tulu·mi·n ~ ʔutulu·mi·n *to roll his blanket*; tu·muš-n *his master, owner of pet*; tuwubil *fast, very*.

ʔu

ʔuʔ *it (liquid) is leaking*; ʔu·ʔ *bitter*: ʔucu·-l *sack, bag*; ʔu·d ~ ʔu·ʔu·t *it is untying*; ʔu·ga·bič *the weasle*; ʔugan *the patch (of plants)*; ʔuganw(it) ~ ʔuʔuganh *to get ready*; ʔuganwit ~ ʔuʔuganw *he is getting ready*; ʔu·gapi·-l *the leg (thing which breaks)*: ʔu·gibi·-l *bunch grass*; ʔu·gu·mi-l *esophagus*; ʔuhula-t *male of any bird*; ʔu·hu·yahm *old woman who packed corpse to grave*; ʔu·iʔ(it) ~ ʔu·ʔu·iʔiša *it is smoking*; ʔu·imu·g-(ut) *to drown*; ʔuimu-l *the sucker fish*; ʔuiŋwa·-l *the chest*; ʔukuluš-t *money basket*; ʔukun *its top, point, peak*; ʔukuš-(ut) ~ ku·š *to crow, yell*; ʔulaka ~ ʔuʔulaka *it is open*; ʔu·law-(it) ~ ʔu·ʔu·lawica *he is getting old*; ʔulumuš *big black ants*.

ʔu·muʔ ~ ʔu·mu·ʔ *to shoot it*; ʔumuša-t *arrow feathers*; ʔumu·bi-l *the yucca*; ʔundu·gal *that one*; ʔundumu·ga ~ tumu·ga *to dream*; ʔunuŋ- ~ nuŋ *to pound*; ʔunduma·-wit ~ tuma·u *he fails*; ʔutudu *tall*; ʔutugu·bi·-l *plant for sticking holes through pine nuts*; ʔutuš-(ut) ~ tula·p *to grind*; ʔu·ʔu-t *the stick, pole*; ʔuʔuẓ-(it) ~ ʔuʔuc *to twine it*; ʔu·ga-t *sugar cane*; ʔu·na-l *the bear*; ʔu·ʔupu-l *cordage brush*; ʔu·ši-l *cactus, with stickers*; ʔuʔuwa·-n *'the bitter one,' white emitic roots*; ʔuwuba·ʔ ~ wuba·ʔ *to whip him*; ʔuwubišt *the whip*; ʔuyu·g ~ ʔuyu·k *to fall*.

w

waciʔaš *with, by means of*; wa·ga·iš-t *the little frog*; wa·g-(it) ~ awak *it is drying*; wa·g-(it) ~ ʔawa·k *it is dry*; wa·giʔ-(it) ~ ʔa·wa·giʔ *to be thin, poor*; wa·hag-(it) ~ ʔa·wa·hai *to work*; wahay- ~ ʔawahai *to scold him, to disown him*; wahaminaš *downwards*; wahcipi·-l *the moccasin*; wahiš *surely, in truth*, waʔatala·p *in truth*; wahtiʔ-aš-(it) ~ wahtiʔaš *to be behind*; waʔ *that*; wah *there*; wa·ʔ ~ ʔa·wa *to broil meat*; wa·ʔa-l *hawk*; waʔad- ~ ʔawaʔat *to run away*; wa·ʔa-t *juniper berry*; waʔan-t *acorn sp.*; waʔawa ~ ʔawaʔawa *to come down*; waiha·m-(it) ~ ʔawaiha·n *to camp-hunt*; wa·iʔit *quick, quickly*; wa·la-t *the basket seed beater*; wa·na·-l *the rabbit net*; wana·ŋ *far away*; wanẓil *that*; waš- ~ ʔawaš *to dig it*; wa·ša-l *the grey crane*; wašaˑg- ~ ʔawaša·k *it flames*; wašakwašaˑg *it is lightning*; wa·tam *the soldier*; wataya·n *its top*; waya·-l *steep side of mountain*; wayu·b- ~ ʔawayu·p *to vomit*.

weču *next*; we·du *so! oh!*; we·ga- ~ ʔe·we·ga *it is breaking*; we·h- ~ ʔe·weha *to lick it*; weleʔ-(it) ~ ʔewaleʔ *to crawl*; wele·h- ~ ʔewele·h *to swallow it*; wele·haniš-t *the fish hook*; we·li-t *the open place*; wewe·hyu·-l *yellow-jacket*.

wi·b-(it) ~ ʔiwi·p *to be fat*; wiša *later on*; wi·g- ~ ʔiwik *to discard it*; wi·h-(it) ~ ʔi·wihi *to wait*; wihnibi·-l *rabbit-skin blanket*; wi·la·-t *skirt feathers*; wilʔla ~ ʔiwilʔla *to grab while going*; wiloko·y- ~ ʔiwiloko·i *to swing*; wili·ʔiniš-t *basket for gathering seed*; wili·ʔin ~ ʔiwili·ʔin *to hold it in hand while going*; wimš-(it) ~ ʔiwimš *to give room*; wi·mi·wi·ma·lat *he goes along zigzagging*; wimšin- ~ ʔiwimšin *to give him roadway*; wi·n- ~ ʔi·wi·n *to present to him*; wi·naŋʔ *north*; wiŋiya·-l *acorns in green horn mountain*; wip-t *the fat*; wi·b-(it) ~ ʔi·wi·p *to be fat*; wi·š- ~ ʔiwiš *to catch it, to rope it*; wi·ša·n ~ ʔi·wi·ša·n *to start it*; wišokombiš-t *the song of turkey buzzard*; witayahata-l*the Tejon Indians*; witayhati ~ ʔiwitayhati *to speak Tejon*; wi·w- ~ ʔiwiw *to ladle acorn mush*; wi·wi·gin- ~ ʔi·wi·wi·gin *to stir it*.

wi·di- ~ ʔi·wi·di *to be angry*; wigi·ʔ-(it) ~ ʔiwigi·ʔ *the tracks are showing*; wigi·l *the tracks*; wigi·yaw- ~ ʔiwigi·yau *to track him*; wi·gi·n- ~ ʔi·wi·gi·n *to drag it* (*e.g. horse*); wi·ʔ- ~ ʔi·wa *it* (*river, tear*) *is running*; wa·ʔi-t *the river*; wiiʔwiiʔ-(it) ~ ʔiwiiʔiwiiʔ *to fall off riding*; wik-(it) ~ ʔiwik *to grab it*; wi·maih-t *head pole*; win ~ ʔiwini *to be*; winapi·l *grass for baskets*; wini·g- ~ ʔiwini·k *to look back*; wiŋa·-l *the summit of mountain*; wiŋi-t *the comb*; wipša-t *the fish pole*; wiš-(it) ~ ʔiwiš *it is ripening, cooking*; wiyuyuʔin- ~ ʔiwiʔyuyuʔin *to trickle it on*.

wo· *two*; wo·ʔami *twice*; wo·ʔo·ŋ *Tuesday*; wo·bayu *on each side*; wo·baiʔida iŋgim *they came on both sides*; wo·yo *both*; wo·twan *two star constellation*; wo·ba·n- ~ʔo·wo·ba·n *to divide, to cut in half*; woʔoco?- ~ ʔowoʔ-oco? *to be in kneeling position*; wo·do-l (1) *the hair center on head*,(2) *the tip of basket cap*; wo·doʔoli·-l *looped stirrer for acorn mush*; wo·gami *yet*; wo·h- ~ ʔo·woha *to bury him*; wo·hna·-l *the frog*; wo·ʔiš-(it) ~ ʔowoʔiš *to be jealous*; woho·ʔ- ~ ʔowoho·ʔ *it is stretching*; wohombo·-l *the bull pine*; wohon-t *little hard acorns*; wohʔwoh- ~ ʔowohʔwohʔ *to bark*; wo·kan *pretty soon, recently*; wo·lo·n-t *the grape*; wo·ma *right away*; woŋgo-l *the shoe*; wopu-l *the gooseberry*; wowo·-l *the testicles*; wohpi-t *arrow basket for shooting rabbits*.

y

ya·ʔ ~ ʔa·ya *to yearn for his master*; yaʔawa ~ ʔa·yaʔwa *to finish it*; ya·bi-l *the skirt*; ya·biʔ(it) ~ ʔa·ya·biʔ *to put on, to wear a skirt*; yah *now, well*; yahawa·-l *red earth*; yaha·wi-t *the point of a hill*; yaʔhiʔiwa-l *folkloristic brownies*; yahn- ~ ʔa·yanh *to believe him*; ya·l- ~ ʔa·yal *to thresh it*; yalaʔ ~ ʔayalaʔ *to be warm*; yamba-l *wild carrots*; yanẓ- ~ ʔayanc *to sit down*; yahta-l *white flowering plant*; ya·yaŋ- ~ ʔa·yayaŋ *to be timid*.

yebeʔ(it) ~ ʔe·yebeʔ *they are together, in time*; yec *or*; yeuʔwišn *the morning star*; yeuʔwa ~ ʔeyeuʔwa *it is getting daylight*; ye·w-(ut) ~ ʔe·ye·u *to be ashamed*; yilaha-t ~ ʔiyilahaša *he is happy*; yitaʔbata-l *antelope*; yihpa-l *the door*; yihpa ~ ʔiyihpa *to shut it*; yi·gišani-l *the center pole*; yi-t *the valley*; yi·w-(ut) ~ ʔi·yiu *to hold it, to keep it*.

yo·ʔ-(ot) ~ ʔo·yoʔ *to be lame*; yo·ʔ oyo·ʔala- *to go along lame*; yo·bini *then*; yo·lin ~ ʔo·yo·li·n *to plow*; yoʔol- ~ ʔoyoʔ-ola *to be bald*; yo·wi *many*; yu· *oh well*; yu·da ~ ʔu·yu·da *it is crushing*; yuh- ~ ʔuyuh *to get close*; yu·mu·gi·wa-l *mythical class of animals*; yu·muk-t *acorn sp.*; yu·mu·gu-l *acorn tree*; yuʔum ~ ʔuyuʔum *it is wearing out*; yu·ẓ ~ ʔuyuʔuc *it is fading*; yu·wi-l *the string*.

NOTES AND REVIEWS

SYNTACTIC STRUCTURES. By Noam Chomsky. 's-Gravenhage: Mouton and Co., 1957. 116 pp.

C. F. VOEGELIN

The author introduces his problem of transform in syntax here; his definitive treatment is reserved for a book already cited as The Logical Structure of Linguistic Theory. Chomsky's introduction is so broadly oriented that it would be easy to review it from even more than the dozen points of view examined by Robert B. Lees (Lg. 33.375–408), hereinafter designated as Chomsky's explicator.

The present review asks only four questions all of which are concerned with a single overarching question: how the low number of languages being deeply analyzed in the present day world (and the high number of languages in the world which still remain to be studied) may be approached through the new theory (if it is new), the revolutionary theory (if it is revolutionary), the pure theory (if it is divorceable from linguistic types). Especially, I try to comprehend whether transforms in syntax will turn out to be elicitable as unknown languages are studied or whether *the construction of transforms will require the linguist to be his own informant.* (The part of the question given above in italics is meant to identify the operational basis of Chomsky's 'intuition'.)

Before asking such questions as these—i.e., immediately after reading Chomsky but before writing this review—I formed a rather strong positive impression, and developed an equally strong negative bias. On the positive side, I had the initial impression that, from the point of view of studying languages of the world, transforms in syntax are important for analysis of syntax. On the negative side, I would not accept the strategy of criticism adopted by Chomsky and his explicator—putting the burden of justification on anyone who would maintain the validity of pre-transform grammar. Some would (almost) accept this; thus, one of my western friends says that Chomsky (almost) convinced him that morphemics was a poor old dead dog. And if transform grammar also persuades linguists to relegate phonemics to a preliminary stage of analysis (called 'discovery'), and to operate in final analysis (called 'description') exclusively with morphophonemics, it will have accomplished a Copernican revolution.

The strategy adopted both by Chomsky and his explicator is apparently modest: you never claim to have invented a better mouse-trap than your colleague; you confess, humbly enough, that of all choices faced in inventing the new mouse-trap, the very weakest springs and smallest capacities were built-in; this humble confession, however, is made in conjunction with a cursory survey to show that all other designs of mouse-traps cannot be expected to work at all, for reasons enumerated.

Whether others besides myself hesitate in accepting this strategy of criticism depends (for decision) on how others answer the four questions raised above which are, more explicitly:

(1) Are transforms in syntax new?[1]

[1] It is possible to give a safe and sure answer to this and the following questions (as was demonstrated by Fred Householder and others, in a recent Ethnolinguistic Seminar)—an answer which does not exceed our knowledge of linguistic history. It is also possible to give an unsure answer which hopes to approximate what historical perspective will show; though such an answer amounts to nothing more than guessing, I would still like to offer my guess or two.

In reference to originality, I would expect a future distinction to be made between (a) and (b), in which (a) alone is concerned with inventing and developing the model of transform grammar—perhaps few will make contributions to the con-

Is it possible to show what the model seeks to show—to reduce a whole grammar to kernel sentences plus a set of transformations?

(2) Will they start a Copernican revolution within linguistics?[2]

(3) Is transform grammar incorporatable in linguistic typology?[3] *Considered separately in a typology of kernel sentences, and in a typology of transformations?*

(4) Is transform grammar elicitable?[4] *Prerequisite variables include the linguist's fore-knowledge of the language under analy-*

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struction of the model besides Zellig Harris, its inventor, and Noam Chomsky, to date its most articulate developer. That is to say, (b) [see below] may possibly not feed back much to (a), the invention and development of the model.

In this distinction, (b) refers to the operation or application of the principle of transformation to grammar, which is certainly not new. Nothing is more familiar or traditional than the expression of transformation in word morphology, especially when one word class is replaced by another; note the 'verbalizing' affixes and the 'nominalizing' affixes mentioned in so many grammars of American Indian languages. In morphology-syntax, 'subordinating mode' affixes and 'independent mode' affixes, with correlated tactics, are equally common; less commonly mentioned as transformations, though by no means rare, are whole sentence transformations as, for example, in Tübatulabal where 'high talk' (characterized as including a sequence of verb stem in X shape followed by a long string of verb suffixes) may be transformed to 'strong talk' (characterized as including a particle to which a string of verb suffixes are affixed in position prior to the naked verb stem in X shape). In contrast, independent treatment of syntax is lacking (and apparently avoided) in the same grammars that are concerned with word, phrase, and sentence transformations—as though 'pure syntax' were as meaningless as the question 'what is syntax?' was to Leonard Bloomfield.

[2] A palace revolution, perhaps, in contrast to the interdisciplinary revolutions plotted by David Bidney, Six Copernican Revolutions, Explorations I: Studies in Culture and Communication pp. 6–14 (1953).

[3] Recent work in linguistic typology treats subsystems rather than whole systems (i.e., the classification of languages as wholes); in fact, subsystem typologies encompass less than the phonology, less even than the whole of a phonemic inventory—at most, vowel types and consonant types emerge, unless the Distinctive Feature description of all phonemes in an inventory (by Roman Jakobson and others) is also regarded as a kind of typology for the entire phonemic inventory, even though this is probably outside the interest and intention of its authors.

Nor does transform grammar seem to be intended as a typology; but those interested in typology may possibly use it for supplementing subsystem types derived from inventories. Thus, suppose that a large set of kernel sentences in French are ultimately reduced to a few, or are expressed as a single kernel with transformation rules; would this, or would this not be tantamount to a transform type? If yes, could the transform type derived from French be compared to the yet-to-be-constructed kernel sentences and accompanying rules for transformation in Hopi? If comparable, then the transform type derived from French should be identifiable as the same as, or different than, the transform type derived from Hopi. But this is not to predict that transform grammar, manipulated as transform type, will rejuvenate typology in extra-phonological subsystems, namely, in morphology-syntax. It may. Or it may lead to deadening generalizations, as 19th century typology did.

[4] The question of eliciting is not unrelated to the chief promise of transform grammar—to provide rules for generating all possible utterances in a given language, and not merely those found in a closed corpus. Rather than agreeing that all pre-transform grammar operated exclusively with a closed corpus, it is worth noting that field work in anthropological linguistics, as a matter of historical fact, operates characteristically with an open corpus. Stated this way, the matter has rested without promising to be exhaustive, and without arousing much response from non-linguists or, for that matter, even from linguists other than those occupied with field work.

In contrast, not only linguists in general, but even mathematicians (for 'the first time', according to George A. Miller, in the December, 1957, SSRC *Items*) respond with understanding to the promise of generating all possible utterances from rules. It is quite possible that this promise will turn out, in operation, to be an analogue of the open corpus procedure in anthropological linguistics—to elicit until the informant turns up nothing new; to project the rules of structure derived thereby as a prediction that no additional features of structure will emerge in any future utterance. This prediction, in anthropological linguistics, is made in the realm of preliminary analysis, when the analyst is still in daily contact with informants, and can safely hypothesize at will—reck-

sis, as well as the informant's intelligence and cooperativeness.[5]

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lessly or cautiously, but not irresponsibly, since he is subject to correction from his informants so long as he has contact with his informants. The promise in transform grammar is projected in the realm of final analysis.

Neither the prediction of open corpus field work nor the promise of transform grammar can by-pass the problem of eliciting, though they can handle the problem differently [see below]. It turns out that however they handle the problem of eliciting, both emerge with statements of structure of classes of morphemes and sequence classes ('grammaticalness'), irrespective of restrictions on individuals within the classes. But it is precisely in the stance that each takes upon facing the restrictions and special privileges within classes ('selection') that open corpus preliminary analysis differs from transform grammar final analysis. The former characteristically turns to cultural domains, as body parts, or artifacts; for Hopi, we say that all body parts may combine with a set of possessor affixes; for Fox, Bloomfield says that all manufactured articles (artifacts) are inflected for the same gender, and so on. It is certainly possible to approach the problem of 'selection' through cultural domains, but not without loose-ends and intersection (as detailed in Hopi Domains, IUPAL Memoir 14, 1957). In effect, the promise of transform grammar is to solve the problem of 'selection'; to generate all possible utterances from rules which leave neither loose ends nor uneconomical intersections.

The 'generating all possible utterances' promise skirts a crucial question, whether to be one's own informant (assuming one is a native speaker or has learned to speak a given language fluently), or not to be. We hope the latter, for then it would be possible to elicit for transform grammar from informants in preliminary analysis, as four of us have agreed to try in the field, with three Uto-Aztecan languages (Hale with Papago, myself with Hopi, and Florence Voegelin with Southern Paiute) and one Tanoan language (Yegerlehner with Tewa). Anthropological linguistics, by the way, skirts another but related question: whether to rely on informant response to eliciting, or to text-test (with volunteered and hence non-elicited texts) all utterances elicited from informants.

[5] For additional perspective given in italics after my questions (1), (3), (4), I am indebted to Zellig Harris (personal communication).

CLASSIFICATION OF TUPI-GUARANI

ARION D. RODRIGUES

Norman McQuown has recently published a synthesis of J. Alden Mason's classification of South American languages.[1] Although everyone will acknowledge the importance of the systematic work of both Mason and McQuown, one cannot help feeling that Taylor's criticism concerning the West Indies, 'the present classification . . . complicates and obscures the perspective unnecessarily'[2] can be applied in part also to South America. I am presently concerned with Tupí-Guaraní, for which this opinion is particularly valid. I do not consider the Macro-Tupí-Guaraní phylum which, as put forth 'very tentatively' by Mason and accepted by McQuown, includes 'Huitotoan' and 'Zaparoan' because I have not as yet found any linguistic evidence for such a phylum. I limit my comments to Tupí-Guaraní proper. In this group, McQuown's paper reproduces exactly Mason's tabulation, without any critical revision, but including mistakes as well as misprints (cf. for example the inclusion of Torá and the classification of Camaiurá as 'Tapajoz Tupian').

It seems to me that McQuown, in trying to present 'the full list of Latin American indigenous languages', has erred in giving the status of 'language' to many local group names. Thus, eighteen 'languages', fourteen of which are presented as 'relatively important' (they are distinguished by numbers on the map), are listed as Coastal Tupian: Tupina (= Tupiguae), Aricobe, Amoipira, Apigapigtanga, Araboiara, Caete, Guaracaio (= Itati), Muriapigtanga, Potiguara (= Pitonara), Rariguara, Tamoio,

[1] Norman McQuown, The indigenous languages of Latin America, AA 57.501–570 (1955); J. Alden Mason, The languages of South American Indians, Handbook of South American Indians, 6.157–317 (Washington 1950).

[2] Douglas Taylor, Languages and ghost-languages of the West Indies, IJAL 22.180–183 (1956), p. 180.

Timimino (= Temimino), Tobajara (= Tabayara = Toboyara), Tupiniquin (= Tupinaqui = Tupinqui), Viatan (= Pernambuco), Tamoia? (= Tamoio), Tupi, Tupinamba. This is properly a list of the local groups of Tupinambá Indians who lived in Eastern Brazil in the 16th and 17th centuries (except Guaracaio or Itati, which is not Tupinambá but Guaraní), as is stated in the ethnological monographs of Métraux.[3] According to the 16th and 17th century sources these groups all spoke the same language, which the Portuguese called 'língua geral', i.e. the general language of the Brazilian Coast. (In order to distinguish the língua geral from other Tupi languages, I have proposed for it the name Tupinambá.)[4] There were of course dialectal variants in an area that extended from about S 1° to S 22°, but the known evidence shows that such variants were very slight. But the Mason-McQuown list is not based on probable linguistic or dialectal differences. It is simply a list of names. All groups that are known under a distinct name figure in the list as distinct entities, all groups that have the same name as unified as one entity irrespective of their geographical distribution.

Under Tupinambá 'language' are listed, for example, the three groups known as 'Tupinambá': the Tupinambá of Maranhão (S 1°–3°30′, W 44°–49°), the Tupinambá of Bahia (S 11°–15°, W 37°–40°), and the Tupinambá of Rio de Janeiro (S 22°, W 41°–45°). Though the Tupinambá of Maranhão and those of Rio de Janeiro lived at the very extremes of the area, they are given the same language. But the Tamoio of Rio de Janeiro (S 22°, W 41°30′–45°), which according to the sources (cf. Métraux, loc. cit.) are the same as the Tupinambá of Rio de Janeiro, are given a distinct 'Tamoio language'. Father Joseph de Anchieta, one of the most reliable sources on the língua geral, distinguishes in his grammar (published in 1595, when the author had already more than forty years of experience in Eastern Brazil) only two dialects: that of the Indians extending from the Pitiguara (in Pernambuco, about S 6°–8°) to the Tamoio (in Rio de Janeiro, about S 23°), and that of the Tupí (in S. S. Vicente, about S 23°–24°).[5] Sources documenting the língua geral on various points of the Brazilian Coast (Anchieta: Rio de Janeiro to Bahia, Léry[6]: Rio de Janeiro, Marcgrave[7]: Pernambuco, Figueira[8]: Northeast, Abbeville[9] and Evreux[10]: Maranhão) demonstrate the remarkable uniformity of the language in this vast territory. The only distinction made is that of Anchieta, who remarks that the Tupí of S. Vicente spoke a dialect sharing some characteristics with the Guaraní (loss of final consonants). The speech of the Tupí was therefore not only a geographical intermediary, but probably also a linguistic one between Tupinambá and Guaraní. Whether some of the groups listed by Mason-McQuown actually spoke a dialect other than Tupinambá is a question that cannot be decided. It is certain that there was a Tupinambá (or Old Tupí) language with only very slight local variations, the other 14 'relatively important' Coastal Tupian

[3] Alfred Métraux, La civilisation matérielle des tribus Tupi-Guarani, p. 12–19 (Paris 1928); id., The Tupinamba, Handbook of South American Indians 3.95–97 (Washington 1948).

[4] Arion D. Rodrigues, A nomenclatura na família Tupi-Guarani, Boletín de Filología 43/45.98–104 (Montevideo 1950).

[5] Joseph de Anchieta, Arte de grammatica da lingua mais usada na costa do Brasil, fl. 1v (Coimbra 1595).

[6] Jean de Léry, Histoire d'un voyage faict en la terre du Brésil, nouvelle édition par Paul Gaffarel, 2 vols. (Paris 1880).

[7] Jorge Marcgrave, História natural do Brasil, trad. de J. P. Magalhães (São Paulo 1942).

[8] Luis Figueira, Arte de grammatica da lingua brasilica (Lisboa 1687).

[9] Claude d'Abbeville, História da missão dos padres capuchinhos na ilha do Maranhão, trad, de S. Milliet (São Paulo n.d.).

[10] Yves d'Evreux, Voyage dans le Nord du Brésil fait durant les années 1613 et 1614 (Leipzig and Paris 1864).

languages of McQuown's list are nothing more than 'ghost languages'.

A similar situation arises for McQuown's Guaraní and Cainguan. Under Cainguan are listed among others Apapocuva, Oguiva or Oguaiva, and Tanygua. Nimuendajú, the only source (and a good one) for the language of these groups, says: 'Genau den gleichen Dialekt wie die Apapocúva sprechen auch die Tañyguá und Oguauíva', a statement that, of course, does not exclude the possibility of minor variations, as, for example, the difference in stress pointed out by Nimuendajú himself.[11]

Mason's internal classification of Tupí-Guaraní is predominantly geographic, not linguistic, and therefore does not correspond to the premises set up in the excellent methodological introduction to McQuown's paper. McQuown himself says that 'no documented study of the internal divisions of Tupi-Guarani on a linguistic basis has been made' (p. 560). The major linguistic defect of Mason-McQuown's classification is the distribution of all Tupí-Guaraní languages in two great divisions, Tupí and Guaraní. Since Tupí and Guaraní, i.e. Tupinambá and Old Guaraní, are very closely related to one another (90% common vocabulary in the 200 item list of Swadesh), it is evident that they cannot give the key for the bipartion of the totality of languages involved in this large and higher differentiated linguistic stock. In this particular, the Mason-McQuown classification is inferior to that of Loukotka.[12]

The subdivisions of Mason-McQuown's Guaranian and Tupian are also predominantly geographic and present great linguistic inconsistency. Thus, for example, Guaraní and Tupinambá (with 90% common basic vocabulary) are separated as members of the two major divisions, but Tupinambá and Šipaya (with 21% common basic vocabulary) are in the same division, and Šipaya and Ramarama (with 14% common basic vocabulary) are in the same subdivision in which Wirafed is also placed. Note however that Wirafed-Šipaya have only 24% common basic vocabulary and Wirafed-Ramarama only 18%, and that Wirafed shares 71% of its basic vocabulary with Tupinambá, which belongs to another subdivision.[13]

My own classification of Tupí-Guaraní (given at the 32nd International Congress of Americanists, Copenhagen, 1956) differs in many particulars from that offered by Mason and McQuown. I have put forth a Tupí stock composed of several families, one of which is Tupí-Guaraní proper. This stock is more inclusive than the Tupí-Guaraní family of Rivet, Loukotka and Mason-McQuown, but it does not correspond to Mason's Macro-Tupí-Guaraní phylum.

The major criterion for my classification is lexical similarity. It is not a final classification: some languages, usually considered in this group, are omitted because I have not yet made a thorough examination of the data. As a first attempt, my classification is certainly subject to improvement, and I shall welcome suggestions to this end.

Divisions and subdivisions in my classification are made roughly according to the following lexicostatistical criterion:[14] stock = 12% or more cognate basic vocabulary, family (symbolized by a capital) = 36% or more, subfamily (a minuscula) = 60%

[11] Curt Nimuendajú-Unkel, Die Sagen von der Erschaffung und Vernichtung der Welt als Grundlagen der Religion der Apapocúva-Guaraní, Zeitschrift für Ethnologie 46.284–403 (1914); see p. 299.

[12] Čestmír Loukotka, Klassifikation der südamerikanischen Sprachen, Zeitschrift für Ethnologie 74.1–69 (1944).

[13] On the lexical relationships see A. D. Rodrigues, As línguas 'impuras' da família Tupí-Guaraní, Anais do XXXI Congr. Internacional de Americanistas, p. 1055–1071 (São Paulo 1955).

[14] Based on the criteria suggested by Morris Swadesh, Towards a satisfactory genetic classification of Amerindian languages, Anais do XXXI Congr. Internacional de Americanistas, p. 1001–1012 (São Paulo 1955); see p. 1010.

or more, language (an arabic figure) = up to 81%, (dialect) (a Greek letter) = 81% or more. Different historical phases of the same language or local varieties of a dialect are designated by Romanic figures.

Some modifications of detail were made in this classification since it was first presented in 1956. A question mark indicates doubt as to the position of the language in the family, but not as to its inclusion in the stock.

A. Tupí-Guaraní

a. 1. Tupí-Guaraní: α. Tupí (i. Tupinambá or Old Tupí, ii. Ñeengatú or Modern Tupí); β. Guaraní (i. Old Guaraní, ii. Avañeẽ or Modern Guaraní); γ. Kaiwá (i. Apapokuva, ii. Mbiá); δ. Čiriguano; ε. Tapieté; ζ. Izozó (Čané); η. Guarayú.

a. 2. Tenetehara: α. Tembé; β. Gwažažara; γ. Urubú; δ. Manažé; ε. Turiwara ζ. Anambé.

a. 3. Oyampí: α. Oyampí; β. Emérillon.

a. 4. Kawaíb: α. Wirafed; β. Pawaté γ. Parintintin.

a. 5. Apiaká.

a. 6. Kamayurá.

a. 7. Aweti.

a. 8. Tapirapé.

a. 9. Šetá (Aré).

a. 10. Pauserna.

a. 11. Kayabí (?)

a. 12. Canoeiro (Abá) (?)

a. 13. Takuñapé (?)

b. 1. Kokama: α. Kokama; β. Kokamilla.

b. 2. Omagua.

c. Guayakí.

d. Maué

e. 1. Mundurukú[15]

e. 2. Kuruaya

f. Sirionó (?)

B. Yuruna

a. 1. Yuruna

a. 2. Šipaya

b. Manitsawá

C. Arikem

1. Arikem
2. Karitiana
3. Kabišiana (?)

D. Tuparí

1. Tuparí
2. Guaratégaya (Koaratira, Gauratira, Amniapé, Mequéns, Kanoé)
3. Wayoró: α. Wayoró (Ayurú); β. Apičum.
4. Makurap
5. Kepkiriwat

E. Ramarama

1. Ramarama: α. Ramarama; β. Ntogapid.
2. Urukú
3. Urumí
4. Arara

F. Mondé

1. Mondé: α. Mondé; β. Sanamaikã (Salamãi).
2. Digüt
3. Aruá: α. Aruá; β. Aruáši.

G. Puruborá

[15] Perhaps rather a family aside Tupí-Guaraní than a subfamily inside it.

ZURICH, SWITZERLAND

SOME PROBLEMS OF SOUND CORRESPONDENCE IN ARAWAKAN

DOUGLAS TAYLOR

In his recent article and classificatory compilation, The Indigenous Languages of Latin America (American Anthropologist 57, 501–570), Norman A. McQuown states his conviction that 'Sound-correspondence matrices ... constitute ... the only completely reliable index to common genesis'; and that where they are lacking, 'postulated genetic connections between languages must be considered as tentative hypotheses only'. And since he also says that he is not aware of the existence of any such matrices for language families south of Mexico, it follows that he regards in this light every grouping of Central and South American languages made so far—including all those listed in this work by himself. Whether one agrees with McQuown's

point of view or not, the lack of published attempts to establish sound correspondences for such groupings is a disquieting fact; and although it is usually explained by the inadequacy of available data on individual languages of this area, there is reason to believe that there may be yet other difficulties. In what follows I shall discuss some problems of this nature that I have met with in the course of my own work; and in the first place those that arise from a comparison of two closely related dialects of one language, so-called Island Carib, apparently belonging to the Arawakan family or stock.[1]

A missionary report for the year 1647 explicitly mentions Dominica, Martinique, St. Vincent and Grenada as islands whose inhabitants then spoke the same language; but it also gives as 'keléatibou *es-tu venu?*' a word of Vincentian Island Carib whose contemporary Dominican equivalent was recorded by Raymond Breton as 'chileátibou'. And although I have been told by a Dominican Carib woman whose mother came from St. Vincent that the dialects of these two islands, though somewhat different, remained mutually intelligible to the end (both became extinct about 1920), recordings made between 1870 and 1914 show such seemingly irrational differences as may be exemplified by broadly phonetic (Dominican : Vincentian) túna : dúna *water* and útu : údu *fish* but uátu : uátu *fire*, káti : háti *moon* but kúra : gúra *drink*, ísika : íčiga *to give* but ásuka : átuga *to chop or fell*.

The American ornithologist Fred. A. Ober believed that such differences were due to the 'greater purity' of his Dominican informant's speech; probably because the recent Dominican forms of these and other words seemed, on the whole, more like their seventeenth-century equivalents as recorded in the same island by Breton toward 1650 ('tóna' or 'tónê', 'áoto' or 'óto', 'ouáttou', 'cáti', 'coúra', 'íchiga' and 'áchouca'; in which the acute accent shows stress, 'ê' indicates a shwa-like vowel and 'ch' a sibi-

[1] Data used in this paper have been taken from the following sources. For Goajiro: from Nils Holmer in IJAL 15.45–56, 110–120, 145–157 and 232–235, according to whom this language contains the following phonemes: p, m, w, t, s, n, l, r, č, š, y, k, ʔ, h, a, e, i, o, u and ə (here written i), together with consonantal and vocalic length (here shown by gemination) and nasalization of vowels (V̰). Holmer also distinguishes "preaspirated" p, t, č and k; but since he comments that these sounds are 'not used by many speakers', and as they nowhere appear to be in opposition to their plain counterparts, they are ignored here.

For Lokono: from C. H. de Goeje, The Arawak Language of Guiana (Amsterdam, 1928), and from Nancy P. Hickerson in IJAL 19.181–190 and 20.295–312. Neither author has made any statement on the phonology; but Hickerson employs only the following symbols: b, f, m, t, d, s, n, l, r, k, h, a, e, i, o and u. Apparently, /f/ has derived from an earlier /p/ within the past hundred years; and it is unclear whether or not a new p—b opposition has yet come into being. Some dialects, according to de Goeje and others, have a sixth (front rounded or back unrounded) vowel phoneme, here written i.

For early Dominican Island Carib: from Raymond Breton, Dictionnaire caraïbe-français (éd. facsimile Platzmann, Leipzig, 1892), Dictionnaire français-caraïbe (éd. facsimile Platzmann, Leipzig, 1900) and Grammaire caraibe (nlle. éd. Adam & Leclerc, Bibliothèque ling. amér. No. 3, Paris, 1878). This dialect had at least five vowel phonemes, which Breton wrote: a, ê, (/a/), e (/e/), i (/i/), ê, eu (/o/ = back unrounded [ë] or [ĭ]) and o, ou, u, hu (/u/ = [o], [u] or ([ụ]) according to environment), probably together with distinctive stress and nasalization. The number of consonantal oppositions is more doubtful; aspiration distinguished /p/ (written p or pf) from /b/ (written b or p) and /nh/ (probably a simple phoneme) from /n/; but evidence for a t—d opposition is lacking, and that for a k—g opposition, similarly based on aspiration, is inconclusive. Apart from these six—or possibly eight—consonants, there were two liquids l and r, a sibilant s (written ch, c, s or ss), an aspirate h, and apparently only one labial nasal m. Data on the recent Dominican and Vincentian dialects are from J. N. Rat in JRAI XXVII (1898).293–315, from various travel books, and from my own recording from sons and daughters of native speakers.

For modern Central American Island Carib: from my own field notes; the phonemes being: p, b, f, m, t, d, s, n, l, r, c, k, g, h, a, e, i, o ([ë] ∽ [ĭ]) and u ([o], [u], [ụ]); together with stress (V̰) and vowel nasalization (V̰).

lant that was, according to Breton, hushing with most speakers but hissing with some), or like those recorded from a Vincentian Carib in Tobago by Sir Wm. Young in 1792 ('tona', 'oto' and 'watho'), than did the recent Vincentian forms. But of the latter, as cited above, the first six are identical, phonematically as well as phonetically, with their equivalents (/dúna/, /údu/, /uátu/, /háti/, /gúra/ and /ĺciga/) in the modern dialect of the Black Carib of Central America, whose forbears were deported from St. Vincent in 1797; while the last, átuga, has been replaced by ácuga/. Are we to conclude that, e.g., the t—d opposition developed independently in St. Vincent and in Central America—but not in Dominica—since the end of the XVIIIth century; that it arose in St. Vincent before the deportation in the form of 'aspirated vs. unaspirated' apical stops, as Sir William may have meant to indicate by his use of 'th' in 'watho' vs. 't' in 'oto'; or that it was present in both Dominican and Vincentian dialects from early colonial times, but remained unrecorded—or recorded only sporadically, as perhaps by Breton's 'tt' in 'ouáttou' vs. 't' in 'óto'—until 'aspirated—unaspirated' gave way as a distinctive feature, in St. Vincent and in Central America though not in Dominica, to 'voiceless—voiced' (or, as in the case of p > f or of k > x > h, to 'spirant—stop')?

It is, in this case, inadequacy of the recorded data that makes it impossible to decide. As I have tried to show elsewhere (Word 11.245ff and 420ff), the Dominican dialect recorded by Breton certainly contained a p—b opposition, and probably also a k—g opposition, based, not on voicing of the latter phoneme (which might or might not occur), but on aspiration of the former; although Breton confused the issue by writing, e.g., non-distinctive variants of /p/ as 'pf' and 'p', and non-distinctive variants of /b/ as 'p' and 'b'. And while there is little or no evidence for a t—d opposition in either early or late Dominican, this would be understandable if the aspirated member of such an opposition were never affricated, and the unaspirated member never or rarely voiced.

On the other hand it is unlikely that Breton should not have noticed, or have left unrecorded, even non-distinctive assibilation of an apical stop such as the sounds [tš] or [ts]; and his recording of the early Island Carib borrowings from Spanish micho and cuchillo as 'méchou' (cf. /mésu/ of the modern Central American dialect) *cat* and 'couchígné' or 'couchígno' (cf. /gusiu/ of the modern C.A. dialect) *knife* makes it tolerably certain that the language of his day had no such affricative phoneme as /c/.

So that, even were it possible to demonstrate the existence of all three of these oppositions in the early Dominican dialect, and to set up such regular correspondences between it and the modern Central American dialect as p : f and b : b, t : t and d : d, k : h and g : g, the seeming correspondences of Dominican /s/ (of both early and late periods)—as in sileádibu (> recent Dominican soloházdibu) : colóhadibu (< keléadibu of early Vincentian), and in ásuga : ácuga (cf. átuga of recent Vincentian)—would still remain unexplained and unusable in any sound-correspondence matrix unless and until factors conditioning the differentiation could be found. To this end I compared 177 pairs of apparently cognate morphemes belonging to these two dialects, having an /s/ in Dominican, with respect to the following vowel (of the Central American form, which usually, though not in every case, is the same as that of the early Dominican). The result, shown here in Table 1, suggests that /c/ of Central American (and presumably also of recent Vincentian) acquired its status as a phoneme through the absorption by a preceding apical or dorsal stop of a front vowel in an -iV or -eV sequence.

And since Lokono (True Arawak) /atika/ *to dig*, like its equivalent in the Central American dialect of Island Carib, /acíga/,

TABLE 1

	Following Vowel			Examples
	i/e	a	u/o	
29 (16%) s : g	28 (97%)	1 (3%)	0	ísira : ígira *to leave*
55 (31%) s : c	12 (22%)	20 (36%)	23 (42%)	ísiga : íciga *to give*
93 (53%) s : s	42 (45%)	28 (30%)	23 (25%)	sísira : sísira *rattle*
177 s : g/c/s	82 (46%)	49 (28%)	46 (26%)	

is or may be pronounced [ačíga], while Lokono /-adiki/ [ağiki] *after* is the equivalent of Central American /-árigi/ [árigi] (/r/ of both Island Carib dialects regularly corresponding to Lokono /d/ as well as to Lokono /r/), it might be thought that these pairs and their Dominican equivalents in /s/, Breton's 'achíca' and 'árici', were cognates; the latter showing already in 1650 a more advanced stage of phonetic evolution than that yet reached today by the Vincentian dialect's offshoot. However, in a majority of cases where early Dominican and modern Central American differ in this respect, Lokono agrees with the former rather than with the latter dialect; and in at least one instance itself has a sibilant where both Island Carib dialects show a stop. See, as an example, Table 2 with Breton's spelling retained).

But it might be objected that the Amerindian population of St. Vincent had been swamped by the middle of the XVIIIth century in a flood of fugitive Negro slaves from neighbouring islands, and that the language of their present-day descendants, the Black Carib of Central America, was therefore unfit for the purposes of such comparison. And the same objection might perhaps be raised against so employing any Island Carib dialect because of the prehistoric Carib invaders' impact on this language as a whole. But when we thus compare such unimpeachable languages as Lokono and Goajiro, we find that similarities between them, though more numerous, are even less systematic. So, compare (Lokono : Goajiro) : hime : hime *fish*, but hikihi : sikih *fire* and ihi : -sih *tail*; isi : -ikii ~ ekiwi *head*, but isiri : -ici *nose*, isiroko : i?iruku *flesh*, -se : -hee *from, belonging to* and siba : ihpah *stone*; kati : kaših *moon*, adonka : atūka *sleep* and eke : ika- *eat*, but kudibiu : ucii *bird*, -kuti : -?uih *foot*, akusi : a?u *eye*, akona : a?una *walk*, adike : ace?e *ear*, okabo : ahappu *hand* and akilika : asiliha *hand over* (*transfer*); bara : palaa *sea*, but -bara : -wala *hair*; lira : cira *that*, but lihi < likia : nia *he* and -loko : -lu?u *in*.

TABLE 2

Lokono *B.G.*	Island Carib		Meaning
	Dom. (Breton)	*Cent. Amer.*	
isi	íchic, icheúkê	icígo, icógo	*head*
isika	íchiga	íciga	*give*
asoka	áchouca	ácuga	*chop or fell*
adimisa	irímicha	irímica	*smell* (v.)
sife-	chipe-, chipi-	gifi-	*bitter*
isiri	íchiri	ígiri	*nose*
balisi	ballíchi, balíssi	balígi	*ash(es)*
subuli	chiboúli	gibúri	*boil* (*tumour*)
isiroko	ékêric, ékrikê	ógorogo	*flesh*

Some of these apparent discrepancies are no doubt due to restrictions in the distribution of Goajiro phonemes; for the glottal stop, Holmer says, 'is not found initially or before a consonant and is weakened in word-final position'; while /l/ and /r/ are replaced by /t/ (so, ere *dog* becomes etka when the so-called article -ka is added), and /t/ by /c/ (cf. piimat *thy lips* with niimaccira *his lips*), in certain environments. Others are probably attributable to dialect

mixture within Goajiro; for Holmer tells us that, in certain words and especially in the 3rd sg. non-masculine possessive prefix, the eastern dialect has /h/ where the western dialect has /s/ or /š/. Moreover it can, I believe, be shown by internal reconstruction that the last two phonemes, both of which regularly correspond to Lokono /t/ (as in asa : ata *drink* and kaših : kati *moon*), as well as /t/ and /c/, both of which regularly correspond to Lokono /d/ (as in aũtka : adonka *sleep* and ace?e : adike *ear*), were positional variants at no very remote time. Nevertheless, the diversity of Goajiro phonemes that appear in place of Lokono /k/ (Goajiro /k/, /?/, /h/ and /s/) and of Lokono /s/ (Goajiro /k/, /c/, /?/ and /h/) is at least as puzzling as that of Central American /g/, /c/ and /s/ replacing Dominican /s/ in Island Carib, or the apparent correspondences of stop to sibilant as between either of these dialects and Lokono.

In Holmer's opinion, 'There can be little doubt about the earlier existence of two k-sounds in primitive Arawak, as reflected in Goajiro.' And if by this he is referring—as I take it that he is—to the probable existence of two distinctive dorsal stops in a language from which both Goajiro and Lokono (and most likely other languages) have evolved, the same might be held of primitive Island Carib as reflected in the Central American dialect, either /g/ or /h/ (and rarely /k/) of which may correspond to Breton's orthographic 'k' (or 'c' or 'q'). But a comparison of forms showing these correspondences in Island Carib with their Goajiro equivalents offers little support for this hypothesis; as, e.g., in: arígai : ace?e *ear*, áiga : -ika- *eat*, káta : kasah *thing*, háti : kaših *moon* and úhabu : ahappu *hand*. And although it does not seem possible to show that /g/, /k/, /?/ and /h/ of these and analogous forms originate in what were positional variants of one and the same phoneme, it may be significant that the glottal stop of Goajiro, common before /a/, /o/, /i/ and /u/, appears to be infrequent before /i/ or /e/; and that assimilation may be suspected in at least some cases where it is followed by these latter vowels, as, e.g., in i?iruku *flesh* and ace?e *ear* compared with their Island Carib equivalents, Breton's 'ékêric' or 'ékrikê' (C.A. /ógorogo/) and 'arícae' (C.A. /arígai/). Moreover, though there seems to be no good reason why Breton's 'natíkiẽ *je pêche*' and 'naríkiẽ *je regarde*' should have given, respectively, /nadígią/ and /naríhią/ of the surviving dialect, there are some grounds for believing that the latter's /g/ and that part of its /h/ corresponding to Breton's 'k' (in contradistinction to /h/ corresponding to his 'h' or zero) both derive from the same phoneme—whether that phoneme had or had not already split by Breton's time. So, when we compare C.A. mála *empty* and gála *having contents*, from -ila *contents*, with máta *bloodless* and háta *bloody*, from -ita *blood*, it becomes evident that the form meaning *bloody* contains a rare variant hA- of the attributive prefix, which is usually gA-; and this variant is found, so far as my data are concerned, always and only with -ita *blood* and with eight other nominal themes.

On the other hand, /s/ of Lokono and of some other related languages appears to derive from more than one phoneme of the proto-language; so, compare Lokono siba : Goajiro ihpah (or Piapoco hiba) : Wapisiana keba : Palicur tipa : Mehinacu tepa, meaning *stone*, with isiri : ici : iribe : ikirti : kiri *nose* of the same languages, or, without Wapisiana, isi : -ikii ∽ ekiwi : teuti : teu *head*. Unless Central American Island Carib cíba and Machiguenga kiba, meaning *wash*, should be their cognates, an assibilant does not appear among the apparent correspondences in the words for *stone*; and neither t nor h appears among those in the words for *nose*. But the geographical distribution of the languages seemingly has little in common with any meaningful grouping of likely correspondences. Thus, if McQuown's Northern, Northern Amazon, Pre-Andine and Southern Arawakan are

TABLE 3

Meaning	I	II	III	IV
stone	s : h	k : t : s : h	k	t : s : h
nose	k : c : s	k : s	k : c : s	k : s
head	k : c : s	k : t : c : s	k : s : h	t : c : s : h

symbolized by I, II, III and IV, and (any) dorsal stop, apical stop, assibilant, sibilant and aspirate by k, t, c, s and h respectively, we find the distribution of apparent correspondences in likely cognates shown in Table 3.

This suggests, if anything, that the prototype of the words meaning *stone* contained an apical stop, that of the words meaning *nose* a dorsal stop; but we are left in doubt about the third item. And although it is not uncommon for either type of stop to pass, under certain conditions, to the other, it may well be that in the forms meaning *head* t and k are false correspondences—that is to say, that forms such as Custenau -teui and Shebayo -keui-, both meaning *head*, once contained two morphemes each, of which only the second are cognate.

Paul Thieme has recently remarked (Language 33, fn. 16, p. 190) that unexplained residua, when kept in the foreground, 'are apt to loom so huge that they hide the background, that is, those more numerous facts that are explainable by our assumptions.' Unfortunately for comparative study of the Arawakan languages, unexplained facts such as have been adduced here, and others to be found in the available records, are so numerous that they cannot honestly be kept in the background; and we can only conclude that a great deal of intimate borrowing has taken place—particularly, perhaps, between languages or dialects that were in some degree mutually intelligible. The splitting and scattering of speech communities into small local groups, with the consequent obligation for many individuals of seeking their mates abroad, may provide a satisfactory explanation of this state of affairs; but it has rendered the task of linguistic comparison extremely difficult.

Data of every kind on more Arawakan languages—many of which are in danger of extinction—are urgently needed; for unless and until they are forthcoming, no systematic comparative work on this important stock can be attempted.

DOMINICA, B. W. I.

A QUESTION ON OCAINA SYLLABLES

ERIC P. HAMP

An alternative analysis to that given by A. Agnew and E. G. Pike (IJAL 23.24–7, 1957) suggests itself. This alternative involves a fundamental, and interesting, question.

Five oral vowels and four nasal vowels are stated to occur (25). Sequences of up to two vowels are found, and these sequences are never mixed with respect to nasality (27). This distributional fact suggests that we might do well to extract nasality and set it up as a separate phoneme; in that fashion, we have five vowels, and nasality occurs only once with a sequence of vowels. The distribution of the nasal consonants is such that syllabic nasality clearly cannot be efficiently considered an allophone of one of those consonants. If we extract just one prosodic feature in this fashion, it is clear that it must be nasality, and not non-nasality, or orality; this is guaranteed by the fact that no nasal counterpart to /e/ occurs.

Agnew and Pike also set up (25–6) two tones: high and low, the latter unwritten. Every V has a tone, and sequences of VV may be mixed with respect to tone (27). This last distribution raises an interesting implication: It would appear that Ocaina

vowel sequences (i.e. 'syllables') are more highly integrated with respect to nasality-orality than with respect to tone.

Casting off the prejudices induced by languages which we have seen before, this state of affairs suggests a different approach and hierarchization. Specifically, we may think of extracting from every vowel sequence an item of nasality or of orality, and from those that show it an item of raised tone. We may, of course, choose to leave the phoneme of orality unwritten. In such an analysis, the prosodic phonemes of (non-) nasality would be analogs to those of stress or tone in more familiar languages, while the 'accent' of raised tone would parallel phenomena found in languages (e.g. Lettish) that show different prosodic configurations within syllables. The fact that nasal sequences of VV closely parallel, in slightly reduced number, those of oral VV (27), and that nasal /e/ does not occur, seem to bear out this analysis; that is, nasal syllables show limitations of exactly the sort that we find in unstressed (or weak stressed) syllables in certain more familiar languages.

There is, of course, no a priori reason why one's syllabic universe might not be organized on a dimension of nasality, rather than on one of intensity or pitch. Since I do not have the requisite corpus at hand to test the suggested alternative, and since there is no point in bizarre pseudo-solutions for their own sake, I put this alternative as a question to the authors. Since the case is an interesting one, and since a fundamental point of prosodic segmentation is at issue, it seems appropriate to discuss the question publicly.

UNIVERSITY OF CHICAGO

KAROK SYLLABLES

ERIC P. HAMP

Without seeming to detract from Bright's excellent study, The Karok Language (UCPL 13, 1957), I should like to suggest an alternative interpretation of Karok vowels and accents.

The vowels are given (7) as:

i	i·	u	u·
	e·		o·
	a	a·	

It would be of advantage if this number could be reduced, though mere number is, of course, not the prime and sole criterion for phonemic analysis. A more important advantage would be the analytic elimination of the unpaired long e· and o·; while they remain in the roster, the length can clearly not be extracted as a separate phoneme in simple combination with the vowels.

I therefore suggest analyzing the longs as double vowels. Thus we have /i u a/, and the geminates /ii, uu, aa/. Following up this cluster analysis, we may now view [e·] and [o·] as /ai/ and /au/. If [ɛ] and [ɛ·] really belong to the linguistic system after all (see p. 11), they would then be /e ee/, of very limited distribution.

Is this analysis nothing more than an arbitrary componential fiction? I think not. Bright sets up three accents: acute, circumflex, and 'no mark'. The acute has two major allophones: before pause it is manifested by glottalized interruption (plus some other features); elsewhere, sustained high pitch. Now, (11) Bright states that before pause only long vowels are accented. If these longs are interpreted as VV, a further simplification becomes thinkable in the case of the accents. Instead of acute, we set up /'/, with two positional allophones: after V, glottalization before V plus pause (P); high pitch elsewhere. We now find that we have at the same time defined the allophone of Bright's circumflex, a falling pitch, since this may be regarded simply as the allophone of high-pitch occurring immediately after C.

Thus, besides a constant effect of syllabic strong stress, in the sequence CV'V(C)P, /'/ has an allophone of glottalization; in the sequence CV' elsewhere (i.e. both CV'C and other CV'V) and in C'V(V), /'/ has an allophone of pitch-peak. The single word 'once upon a time' is stated (167 fn. 3) to have a falling-rising tone; we

may write this ?ukn'ii'. In that event, we have the sequence C'VV'(P) also occurring.

I suggest, then, that Karok has three vowels /i u a/, and one accent /'/.

Bright gives a fine detailed presentation (12–4) of features that suffice to establish a juncture phoneme /#/. The phonetic characteristics of what he calls 'no accent', indicated by absence of diacritic (12), are, thanks to his thorough analysis, completely predictable in terms of the number of V's, presence of /'/ or # or P, and the distribution of these relative to each other. Thus, the six phonetic features and combinations stated by him (13) would seem to be complex allophones of vowel, accent, juncture, and pause; the relevant environments may be restated as (given in the same order as Bright's paragraphs): a) P, # CVVC-; -CVC-; b) -CVV-; 'VVCVC-; V'(V)CVCV (V)-; c) P/# ... CV(V) ... P; d) -CVV(C)P; e) -CV(C)P; f) P/#CVC-; -CV(V)(C)#; all other (medial) environments.

In this fashion, I interpret 'no mark' not as another accent phoneme, but as absence in the stated environments of accent /'/. Alternatively, but I think less economically, there is 'no mark', and no juncture.

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NOTES ON SOME PCA STEMS IN /k-/

MARY R. HAAS

1. With the appearance of Charles F. Hockett's Central Algonquian Vocabulary: Stems in /k-/[1] we have a most welcome first installment of what promises to be a major contribution to North American comparative and historical linguistics. The importance of a comparative dictionary of any major linguistic family cannot be overemphasized. It opens the door to a deeper historical knowledge of linguistic groupings (e.g. the possibility of comparing one proto language with another proto language) and of earlier cultural contacts (e.g. discovering evidence of linguistic borrowing at a greater time depth) in a way that no other type of information can do.

In Stems in /k-/ Hockett gives us 126 numbered groups of reconstructions. "In general," he says, "a numbered group includes all material built on a single PCA root" and as a rule the primary entry of the numbered group is therefore the root itself. At other times, however, a numbered group has as its primary (or sometimes sole) entry a longer reconstruction composed of two, three, or even more morphemes. The purpose of these brief notes is (1) to make analytical or etymological suggestions concerning some of the entries, and (2) to point out a curious resemblance between a reconstructed PCA bird name and a reconstructed Proto Muskogean bird name.

2. *Other* and *One*. My first note has to do with PCA *kotak- (item 103) *other* (pronominal). I believe this to be related to PCA *nekotwi one (Bl 348).[2] If so, we can set up a root *kot- (or better, *kwet-; see next paragraph) meaning *one, other*. It is not uncommon for languages to use the same root for both of these meanings.[3] But if we set up *kot- we are still left with other morphemes to be accounted for in *kotak- and *nekotwi. The element *-ak- in *kotak- is probably the same as *-ak-

[1] IJAL 23.247–268 (1957). Hockett's reconstructions are referred to by the number he has assigned to them and are quoted exactly as given except that *? is substituted for *q (glottal stop). Abbreviations, which are also the same, are as follows: an., animate; C, Cree; F, Fox; inan., inanimate; M, Menominee; O, Ojibwa; P, Potawatomi; PCA, Proto Central Algonkian; pl., plural; sg., singular; Sh, Shawnee; TA, transitive animate (verb); TI, transitive inanimate (verb). In addition there is Mi for Miami.

[2] Leonard Bloomfield, Algonquian, in Harry Hoijer and others, Linguistic Structure of Native America, VFPA 6.85–129 (1946). The abbreviation Bl stands for Bloomfield; the number following refers to an italicized numbered item in this work. When a page number is referred to the abbreviation p. precedes the number.

[3] An example of this is seen in Tunica sah-, saha- *one, other*, as in sáhku *one* (-hku, numeral-forming suffix) and sáhaku *the other* (masculine entity referred to) (-ku, masc. sg. suffix).

in *awiyak-; note the parallelism between *kotaka *other*, an. sg., and **awiyaka* someone, anyone, an. sg. (also pl., B1 341). The proposed segmentation of *nekotwi may be justified as follows: It has been suggested that the *ne- of *nekotwi may be analogical;[4] Delaware, for instance, has kwát·i one.[5] Observe that the four succeeding numerals of PCA also begin in a dental nasal, viz. *ni·šwi *two*, *ne?θwi *three*, *nye·wwi *four*, *nya·lanwi *five* (B1 349–352 inclusive). Bloomfield isolates a particle-forming suffix *-i in numerals and other words (p. 116), but, as far as I can determine, he makes no further segmentation of the numerals. In fact he states specifically that the 'root' for *two*, for example, is *ni·šw- (p. 120). However, if *kotak- and *nekotwi are related as derivatives from a common root *kot-, then it follows that *-w- is also segmentable, perhaps as a numeral-forming suffix.

Also worthy of comment is the fact that Miami[6] evidence (for understandable reasons not included by Hockett) points to PCA *kwet- rather than *kot-. PCA *kotaka *other*, an. sg., and *kotaki *other*, inan. sg., appear in Miami as kwitaka and kwitaki, respectively. Delaware kwat·i *one*, quoted above, points in the same direction. Hockett is aware, of course, that a sequence *kwet- is probably required in the word for *one* in Proto Algonkian (as opposed to Proto Central Algonkian) on the basis of Plains evidence.[7] The significance of the evidence cited here is that it points to a reconstruction *kwet- even for PCA.

3. *Fear*, *Swallow*, *Try*, and *Tip Over*. The PCA stems or forms with these glosses all appear in Miami with initial /kwV-/ in place of /ko-/. Dunn's recording of Miami is not sufficiently consistent to establish whether /kwe-/ or /kwa-/ is involved in any particular instance. But sometimes evidence from an Eastern language can be brought in to help in the solution of the problem, though Miami evidence alone (if accurately recorded) would be sufficient. The examples follow:

*ko?- (98) *fear*, *ko?tamwa TI *he fears it*; cp. Mi kwätamani TI *I fear it* (with postposed first person sg. actor). Cp. also Natick quehtam *he fears it*.[8] I suggest a revised reconstruction *kwe?- ~ *ko?- for PCA.

*kon-, *ko·n- (96) (only with *-t or *-θ) *swallow*; *ko(·)ntamwa TI *he swallows it*; cp. Mi kwändamani TI *I swallow it* (*once*). But Mi also has /ko-/ in one of the derivatives: *ko(·)nta·kani throat; cp. Mi akondakani. For this root P evidence (Hockett) is more precise and points to *kwan- rather than *kon-.

*kot- (102) *try*; cp. Mi kwataliani (read ä for a?) *I am trying*, *endeavoring*; also kwätinämani TI *I feel it* (*sense of touch*) [*try by hand*?]. Here none of the languages used by Hockett retains a trace of *kw-.

*ko·hka·we·wa (109) AI *he tips in canoe*; cp. Mi kwäkakiani *I capsize it* (*boat*). Again there is no evidence for *kw- among the languages cited by Hockett.

4. *Sharp* and *Sore*. Shawnee ki·t- *grind*, *sharp*, *sharpen* is compared by Hockett to PCA *ki·t- (93) *sore* rather than to *ki·nl- (85) *sharp*. I believe this to be an erroneous etymology. Shawnee appears to have a pair of homophonous morphemes, one meaning *grind*, *sharp*, *sharpen* (related to item 85)

[4] Karl V. Teeter, Wiyot and Algonquian: a Preliminary Study, ms.

[5] C. F. Voegelin, Delaware, an Eastern Algonquian Language, in Harry Hoijer and others, Linguistic Structures of Native America, VFPA 6.130–157 (1946); see p. 157.

[6] C. F. Voegelin, Shawnee Stems and the Jacob P. Dunn Miami Dictionary, Parts I–V, Indiana Historical Society, Prehistory Research Series 1.63–108, 135–167, 289–341, 345–406, 409–478 (1937–40). With the exception of one Miami form quoted from Siebert (see footnote 13 below), all Miami and all Shawnee forms cited in this paper are taken from this source.

[7] Charles F. Hockett, Sapir on Arapaho, IJAL 12.243–245 (1946), p. 245.

[8] James Hammond Trumbull, Natick Dictionary, BAE-B 25 (Washington, D. C.; 1903).

and the other meaning *sore* (related to item 93).

Prior to the appearance of Hockett's Stems in /k-/ I had made a tentative PCA reconstruction *ki·nt- in the meaning *grind, sharpen*; cp. Sh ki·t-, Mi kindawawi *sharp* and kindongi *sharpened*. Of these two languages only Mi retains the *-n-; Sh regularly loses the nasal consonant in all PCA nasal + stop clusters.[9]

Is it possible to reconcile a reconstruction *ki·nl- and a reconstruction *ki·nt-, both in the meaning *sharpen*? Bloomfield cites (p. 115) a rare TA (transitive animate) verb final *-l- found in *a?l- *place*, *wi·nl- *name*, *no·nl- *suckle*. One of these, *wi·nl-, has a TI (transitive inanimate) mate *wi·nt- attested in *wi·ntamwa *he names it, tells it* (Bl 334). I therefore propose that Sh and Mi point to a PCA stem *ki·nt- TI which presumably existed alongside *ki·nl- TA as attested in some of the forms quoted by Hockett. The unextended root meaning *grind, sharpen* would therefore be *ki·n- even though existing only in combination with *-t- or *-l-, as shown.

Since Sh regularly loses the nasal of PCA nasal + stop clusters, *ki·nt- *grind, sharpen* and *ki·t- *sore* would both yield Sh ki·t-. Hence this pair of homophonous stems in Sh.[10] Sh also has a reduplicated (?) stem ki?ki·t- *sore, inflamed*.

Further evidence that *ki·nt- yields Sh ki·t- is seen in the fact that *wi·nt- TI (as in *wi·ntamwa cited above) yields Sh wi·t-, as in niwi·ta TI *I named it*.

5. *Spruce* and *Prickly*. Hockett reconstructs *ka·wa·ntikwa (38) *spruce* to account for M ka·wa·htek (pl. -ok) ~ *ka·wa·ntakwa to account for O ka·wa·ntak and suggests that the forms are perhaps built on *ka·w- (37) *prickly*. The M word could just as well go back to a PCA form *ka·wa·htekwa *prickly tree* from *ka·w- + *-a·htekw- *tree* (Bl p. 106); cp. *elena·htekwa *ordinary wood* or *tree*: M ene·na·htek *hardwood*, O inina·ttik *maple* (Bl 193). The fact that the word for *spruce* in O cannot be fitted in with this proposed etymology does not invalidate the etymology for M. Clearly more evidence is needed before a firm reconstruction for the PCA word for *spruce* can be set up.

6. *Scrape* and *Dry*. Sh ka?k- *dry, rough* is cited by Voegelin as having the specialized meaning *scrape, shave* when used with the instrumental -?h-. Hockett quotes an inflected form of the stem in this meaning, viz. nikakhwa *I shave him* (Sh ka?k- + -?h- > kakh-), as a derivative of *ka·šk- (36) *scrape*. Wick R. Miller's study of Shawnee historical phonology[11] makes it clear that Sh -?k- (as in ka?k-) cannot be derived from PCA *šk or *sk; these yield Sh -šk-, e.g. Sh kišk- < *ki·šk- *sever, cut through* (92).

The phonology would be correct if Sh ka?k- in its specialized meaning *scrape, shave* were to be connected with *kaHk- (3) *sharp*. However, the paucity of forms cited in the daughter languages makes the semantic development impossible to trace. Borrowing as a source for this Sh stem cannot be ruled out, however. Whereas PCA *šk and *sk yield -šk- in Sh, in Mi they yield k (probably meant for hk or kk; Dunn's recordings are often difficult to interpret), e.g. *ki·škahamwa TI *he chops it through*; cp. Mi käkahamani TI *I break it open* and/or kikahamani *I notch it (with ax)*. In the same way PCA *ka·šk- yields Mi kak(k)-, as in kakkioni *razor* and probably also in kakawaka TA *I clean (dress) him (fish, game, etc.)*.

We are also left without a prototype for Sh ka?k- in its primary meaning of *dry, rough*. Since *sk and *šk both yield Sh -šk-, Sh ka?k- in the meaning *dry, rough* cannot be derived from *ka·sk- (34) *dry(?)* any more than its specialized meaning *scrape, shave* can be derived from *ka·šk- (36).

[9] Wick R. Miller, An Outline of Shawnee Historical Phonology, ms.

[10] Popular etymology has no doubt further confused the picture. Voegelin cites Sh niki·citepe·na *I touched his sore head [which felt as though I were grinding it by hand]* (p. 292).

[11] Op. cit.

7. *Belt.* Hockett quotes Sh kcipite (sic; read kci·pite)[12] *it is tied on* in connection with *keHcipisowini *belt*. By a strange coincidence the Sh word is taken from a phrase ktapiθo·we kci·pite *the belt is tied on*, and it is the first word, ktapiθo·we *belt*, which perhaps might better be cited. However, as Hockett points out (in reference to all the forms cited), "the agreement is not exact and the reconstruction is in doubt." The Sh word ktapiθo·we does not help much. It seems to show the *i/*a alternation and also has a long o· which is not the result of contraction.

Voegelin lists the Sh words just cited under kt-, kc- *big, superlative*; this is derived from *ke?t- (56). Under non-initial elements (p. 101) we find a Sh morpheme -api *tying pulling, catching, drawing in, pulling up*. Is this the same as -api in ktapiθo·we? Is there also an allomorph -i·pi, as in kci·pite? And is this also reflected in F kehci·piso·ni?

8. *Snake* and *Spider*. Item 51 is *kene·pikwa *snake* and the principal supporting forms are C kine·pik (pl. -wak); sO kene·pik (pl. -wak or -ok). Mi kinäpikwa *snake* also fits perfectly. The Sh form cited, however, is troublesome. In the first place it is given by Voegelin as ?kinye?pikwa (not kinye?pikwa) and means *spider*. It is cited with an initial cluster ?k (which cannot actually begin a word) because it is usually found in the combination mši?kinye?pikwa (mši-*big*). This form has two clusters, viz. ?k and ?p, which cannot be derived from a PCA *kene·pikwa; the ny likewise does not fit.

In addition to this word there are two other Sh words meaning *spider*, viz. he·pikwa beside we·pikwa (p. 456), and in connection with these words Voegelin cites mši?kine·pikwa *monster* [*according to popular etymology related to the common spider in name* . . .]. Perhaps mši?kinye?pikwa (p.306) is an error for mši?kine·pikwa (p. 456). At any rate the second form eliminates ny and ?p and hence fits well with Hockett's reconstruction if we can assume that the ? of ?k has an explanation on the synchronic level within Sh.

The acceptance of a reconstruction *kene·pikwa *snake*, however, still leaves us without an etymology for the word. Under *kenw- (53) *long* Hockett includes *kenwa·-pye·k- in *kenwa·pye·kesiwa AI *he is a long string, long snake*. *kenwa·pye·k- is < *kenw- + *-a·pye·k- *string, row* (Bl p. 118). When more is known about PCA morphophonemics perhaps a connection can be established between *kene·pikwa and *kenwa·pye·k-. I am further strengthened in this view by the fact that M kenu·pik snake shows divergence from the other languages. This divergence may reflect conservatism rather than innovation or contamination; cp. M kenuapi·kesew *he is a long string, long snake* < *kenwa·pye·kesiwa.

9. *Morning*. Item 46 is *kekišye·pa *in the morning*. Sh and Mi have forms without *keki showing that this may be some kind of separate particle; cp. *keki *having such and such a thing* under *kek- (45). Sh has še·pa·wi *morning*, Mi has šaiipawă. Does Mi reflect an extra syllable as in F keki-šeye·pa?

10. *Gull*. Item 28 is *kaya·Hkwa (H = unknown initial of cluster) *gull* and the supporting forms are M kaya·h, pl. kaya·hkok; O kaya·šk (pl. -ok) (Bl p. 89). There are also some additional Central Algonkian cognates cited by Siebert,[13] viz. C kiya·sk, Mi kiyahkwa, and even though these forms fail to clarify the unknown consonant cluster they introduce interesting evidence for an *i/*a alternation in the first syllable. The vowel alternation requires us to reconstruct *ki/aya·Hkwa in the sg.; the pl. would be *ki/aya·Hkwaki.

In articles on Proto Muskogean[14] I have

[12] Voegelin, Shawnee Stems, p. 293.

[13] Frank T. Siebert Jr., Certain Proto-Algonquian Consonant Clusters, Lg. 17.298–303 (1941); p. 300, footnote 7.

[14] Mary R. Haas, Development of Proto-Muskogean *k^{w}, IJAL 13.135–137 (1947), and On the Historical Development of Certain Long Vowels

cited a reconstruction *k^{w}iya·nkak (or perhaps *k^{w}iya·nkaka) *hawk, chicken hawk* and the supporting forms are Ch biya·^{n}kak; Al, K biyakka; Cr kiya·kka.[15]

What is the explanation of the striking similarity between PCA *kiya·Hkwa *gull*, pl. *kiya·Hkwaki (alternates of *kaya·Hkwa, *-aki) and PM *k^{w}iya·nkak *hawk*? Do we have an early borrowing here? And, if so, in which direction? If PM borrowed from PCA, the PCA pl. *kiya·Hkwaki was presumably the source and the *kw was metathesized from the third syllable to the first. The PM cluster *-nk- does not invalidate this possibility. Only Choctaw has the -n- and this might be a later intrusion in spite of my earlier assumption that PM *nk > Ch ^{n}k; Al, K, Cr kk. Perhaps I should reconstruct PM *k^{w}iya·(n)kkak. Furthermore, if the gull or hawk was a totemic animal it would be quite natural for PM to borrow a plural form as basic.

On the other hand, if PCA borrowed from PM, the PM form was presumably interpreted as a plural and the singular form was accordingly arrived at by reduction. Or perhaps the several Algonkian languages have borrowed the word from an early form of Creek—it could not have been from any other known Muskogean language because they all have b < *k^{w} whereas Creek has k < *k^{w}—and if so, this might account for the difficulty in reconstructing the cluster for PCA.

Natchez, distantly related to Muskogean,[16] has a word kiya·s *hawk*. This may be related to PM *k^{w}iya·nkak, but if so we would expect the Natchez word to have initial /k^{w}/ rather than /k/ and the final /s/ is also a problem. On the other hand, the Natchez word bears a close similarity to Cree kiya·sk and is very likely a borrowing from that source, though Ojibwa kaya·šk is easily a second choice as the source—Natchez has only one sibilant phoneme /s/, pronounced [š].

The solution to the problem posed by the PM form, however, is not yet readily apparent. But the striking similarity between PCA *kiya·Hkwaki (pl.) and PM *k^{w}iya·nkak clearly shows us that new problems and new insights will be opened up to us once we have more material on North American proto languages.

UNIVERSITY OF CALIFORNIA, BERKELEY

RUSSIAN LOANWORDS IN SOUTHWESTERN POMO

ROBERT L. OSWALT

The Southwestern Pomo language is spoken by a division of the Pomo Indians who, in aboriginal times, ranged along the California coast from a point a few miles south of the mouth of the Russian River northward to the mouth of the Gualala River. They are noteworthy, among other things, for having had the most prolonged contact with the Russians of any Indians in the mainland United States. The Russians occupied the settlement of Fort Ross, in the middle of SW Pomo territory, from 1811 to 1840.

Fieldwork was done among these Indians in the summer of 1957 under the sponsorship of the Survey of California Indian Languages, Department of Linguistics, University of California, Berkeley. A search has been made of the material collected for possible loanwords from Russian with the result that twelve have been uncovered. In the following citations the Russian model is given phonemically for the modern standard literary language except where otherwise noted.

(1) kuška *cat* < kóška; (2) loška *spoon* < lóška; and (3) mišuk *sack* < m^{y}išók show borrowed forms with phonemically different

in Creek, IJAL 16.122–125 (1950). See item 5 on p. 136 of the first source and item 8 on p. 123 of the second.

[15] The abbreviations are: Ch, Choctaw; Al, Alabama; K, Koasati; Cr, Creek; PM, Proto Muskogean.

[16] Mary R. Haas, Natchez and the Muskogean Languages, Lg. 32.61–72 (1956).

back vowels where the Russian has only one, even though the phonetic environments are quite similar. The Russian /o/ is phonetically intermediate between the SW Pomo /o/ and /u/ and could have been originally interpreted differently by different individuals who then had their versions spread to the other speakers of SW Pomo. A similar apparently unsystematic variation occurs in loanwords from Spanish which contain /o/.

(4) šinitča *wheat* < pšinʸíca exhibits a simplification of the initial cluster since there are no clusters in that position in SW Pomo. It also shows a replacement of the Russian /c/ by the nearest equivalent in SW Pomo, /č/. SW Pomo has a rather simple pattern of stress on syllables which contain a long vowel or which are closed by a consonant. Since the stress in the Russian word is on the penultimate syllable, that syllable has been reinterpreted as closed by a geminate (/tč/ could just as well be written /čč/ since there is no contrast). Geminates ordinarily occur in SW Pomo only at morpheme boundaries and the presence of such a cluster in the following word first led to the suspicion of its being a loan.

(5) kulučitča *wild mustard* < garčíca *mustard* contains an interesting popular etymology. /kulu/ is a morpheme meaning *woods* or *wild* and represents an adaptation in form and meaning induced in part at least by the fact that the Russian sequence /gar/ contains a /g/ which is lacking in SW Pomo and a /r/ which is rare, the latter occurring only in loanwords from European languages. See (10) below.

(6) molokko *milk* < malakó is probably a borrowing from a non-standard dialect of Russian which preserves the o-quality in unstressed vowels. A transliteration of the Russion orthography is moloko. There is no simple explanation within Russion or SW Pomo for the gemination of the /k/.

(7) kafey *coffee* could be from colloquial Russian kófey, in which case the quality of the first vowel is unexplained, or from Spanish café, with the presence of the final /y/ unaccounted for; or perhaps it is a blend of the two. This borrowing contains /f/ which occurs in SW Pomo only in loanwords from European languages.

(8) ča·yu *tea* < čáyu is noteworthy in that it is the partitive form of the Russian word that is borrowed. The stress on the first syllable of the Russian form is reinterpreted in this case and in several of the following citations as a long vowel.

(9) čaška *dishes* < čáška *cup* and (10) pa·rus *canvas* < párus *sail* (the noun) are used not only as simple nouns but also in two interesting compounds:

čaškahča *cupboard* < čaška + -hča *house*.

pa·rusbačo· *canvasback duck* < pa·rus + bačo· *back*, a translation loan from English.

(11) ya·palka *apple* < yáblaka shows a metathesis of the /l/ to give a normal SW Pomo consonant cluster /lk/ in place of the non-occurring cluster /bl/. The /b/ is replaced by /p/ although /b/ is a common phoneme in SW Pomo. The long vowel represents the original stress.

(12) ču·ki *socks* < čulkʸí has the long vowel representing the Russian /l/. Perhaps the /l/ is so represented because it is a 'dark l' following a high back vowel /u/.

It is interesting to note that Central Pomo, which is spoken in the area just north of the SW Pomo territory, contains at least three of these Russian loanwords: loška *spoon*, ča·yu *tea*, pa·rus *canvas*. Another word, kapʰe *coffee*, has probably been borrowed from Spanish café.

At the time the Russians occupied Fort Ross they had with them many Aleut hunters. Accordingly a search was made for possible loanwords into SW Pomo from Aleut with the result that one has been discovered so far.[1]

kalikak *letter, book* < kalikaq. This is perhaps ultimately from Russian kniga *book*

[1] In Richard H. Geoghegan, The Aleut Language, United States Department of the Interior, 1944, edited by Fredericka I. Martin; a compilation and translation of the works on the Aleut-Fox language by Ivan Veniaminov.

with the addition of the Aleut nominative suffix -q.

UNIVERSITY OF CALIFORNIA, BERKELEY

NOTE ON LAKE MIWOK NUMERALS

CATHERINE A. CALLAGHAN

Archaic roots have apparently become crystallized in certain Lake Miwok numeral formations.[1] ʔóṭṭaʔoṭa *two by two* contains both the free form ʔóṭṭa *two* and a bound form -ʔoṭa. This bound form also appears in ʔoṭáakoc *both*.[2] ʔoṭóṭṭa *four* seems to be an irregular compound of the free and bound forms. ʔóṭṭhaja[3] *eight* is a compound of ʔóṭṭa and *-haja, the bound form of an obsolete word for *four*; cf. Bodega Miwok hu·ya *four*.[4]

The word kedékku *five* preserves two older roots, namely *ket- *one* and *-ékku *hand*; cf. Wintuķete- *one*[5] and Plains Miwok ʔékku *hand*.[6] This etymology is no longer self-evident from the ordinary Lake Miwok words kénne *one* and ʔúkku *hand*. ʔukúukoci *ten* shows another variant of *hand*, namely *uku-.

Besides *ket-, cited above, there is another allomorph *ken- *one*, which appears in Lake Miwok kenúu kílli *spike* (lit. *one-horn*), Plains Miwok kenékkak *seven*, Bodega Miwok kénék·u *five*[7] and also in Lake Miwok kénne *one*. The conditions governing the alternation *ket- ~ *ken- in Proto-Miwok cannot as yet be determined.

[1] Suggestive comments on the etymology of certain Miwok numerals are to be found in Robert Shafer, Notes on Penutian, IJAL 18.211–216 (1952). The present etymologies are suggested on the basis of recently recorded materials. The Lake Miwok and Plains Miwok forms are from my own unpublished field notes, Linguistic Survey of California, Department of Linguistics, University of California, Berkeley.

Grateful thanks are due to M. S. Beeler and William Shipley for suggesting the etymologies of the words *eight* and *five*, respectively.

[2] -koc is a dual suffix. The shift in length in *ʔoṭa- is morphophonemically determined.

[3] I use j for [y] in the Lake Miwok forms.

[4] L. S. Freeland obtained a small vocabulary of Bodega Miwok in 1931, including the numerals from one to five. They are, in order: kén·e, ó·sa, tél·é·ka, hu·ya·, kénék·u. I have made no attempt to normalize her phonetic transcription.

[5] Harvey Pitkin, unpublished field notes on Wintu, Linguistic Survey of California.

[6] The Bodega Miwok word for *five*, kénék·u, also preserves this root.

[7] See footnote 4.

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SUMMER SCHOOL OF LINGUISTICS: UNIVERSITY OF ALBERTA

The University of Alberta, in cooperation with the Canadian Linguistic Association, will hold a Summer School of Linguistics for a six week period during the summer of 1958 (July 2 to August 15). The following courses, each of which carries credit, will be offered: Descriptive Linguistics, General Linguistics, Linguistic Geography, Modern English Grammar, Teaching English as a Second Language, History of the English Language, Comparative Classical Philology, and Romance Philology.

It is expected that a number of bursaries and grants-in-aid will be available for students wishing to attend, both American and Canadian.

All inquiries should be directed immediately to Ernest Reinhold, Director, Summer School of Linguistics, University of Alberta, Edmonton, Canada.

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